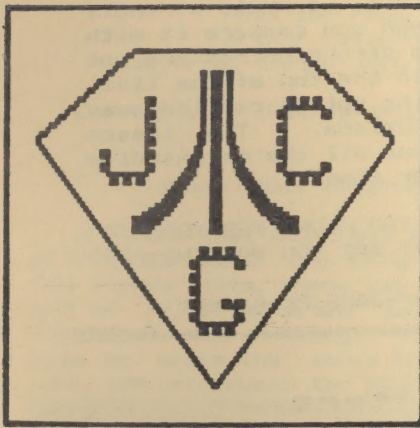




JACG JACG

NEWSLETTER
Vol.3 No.8

Apr. 1984

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THE JERSEY ATARI COMPUTER GROUP

★★★★★ DISK LIBRARY LISTING/PART II ★★★★★

From the Editor's Desk...

It's Spring! Well, it may not look exactly like green grass and robins yet, but at least the official season is here. And with it comes the promise of new growth and freshness, a resurgence of the juices of life. At JACG we hope you experience those marvelous feelings and have them carry over into your computing life.

As part of your revitalization how about dedicating two hours to the club? Compose an article or two about those things which interest you the most. If you're a novice, tell us why you chose Atari. If you're an intermediate, share with us some of those things which have impressed you most about this great computing system. You advanced hackers might take a little time and show the rest of us some special tricks you know which might inspire us to follow in your footsteps. No matter what you tell us there will be a large and truly interested audience. I can promise you that is true.

This issue is a benchmark for me. It is thirty-two pages, crammed with JACG original material. It represents what this group is easily capable of generating. It means that each of us must not be only a consumer. We must also, occasionally, be a giver. On page 4 is another of talented JACG artist Tony Pellechio's cartoons. The pilot (Tony says it's me) is imploring you to "Give a bit!!". He is right. You will see more of this slogan in months to come. Plant the seeds of your future article now and with the weeks to come we will all share in the harvest.

One small caveat...this is the April issue. As you wend your way through the pages be careful; unlike Will Rogers, don't believe all you read in the papers.

Frank Pazel
Editor-in-Chief, JACG Newsletter

JACG MEETINGS

by Richard Rospond - JACG

For April:

If you like to play games, or if you like to program (I think that covers everyone), don't miss April's meetings which will feature a team from ELECTRONIC ARTS. This is one of the best known software publishing companies known for PINBALL CONSTRUCTION SET, and many other programs.

For MAY:

Keeps your ears open because Chris Crawford of ATARI fame (yes- the guy who makes the funny ATARI films) is coming. He might not be here on the normal meeting date, so watch for a special announcement.

For JUNE:

Another coup - Jerry White. Jerry is one of the most prolific writers for the ATARI computer. He has written many utilities and programs such as Jerry White's music lessons. There are few people in the world who know as much about ATARI computers as Jerry White.

And of course, the usual game reviews, demos, etc.

.....

MARK YOUR CALENDARS!!

JACG Meeting Schedule

May 12, 1984

May 26, 1984 <==Chris Crawford Day

June 9, 1984

July 14, 1984

And Now A Word From The President.....

As those of you who attended our March meeting know, we are once again faced with the problem of what to do now that we seem to fill the 400+ seat auditorium. The executive committee will be addressing this problem soon and, based on past discussions, we will probably have to limit meeting attendance to members (and their families?) only. We can see no practical way to replace the meeting facilities we enjoy and, therefore, have concentrated on methods of limiting meeting attendance.

The month of May will be special for JACG. We will have not one, but two unusual meetings. On our regular meeting date, May 12th, we will have a meeting unlike any other we have ever held. Instead of one speaker at a time speaking to an auditorium full of people, we will have about 10 speakers, with computers, talking to smaller groups. Each presentation will be about 30 minutes, and then everyone will have the opportunity to move to a different demo. We expect to have demos on topics including; telecommunications, help for beginners, light pens and touch tablets, ATR8000, FORTH, computers for kids, and much more. We are in need of volunteers to man the stations, either those mentioned here or others of your own suggestion. If you want to help out in this unique experiment, call Jerry Frese, 895-4796 (home) or 581-5978 (work) and leave him a message. He will get back to you. I want to thank Jerry for suggesting this exciting idea and volunteering to organize it. Here is an opportunity for some of you to put in your two hours per year to help JACG as I suggested in our last newsletter.

Our second special May meeting will be on Saturday, May 26th. This meeting will feature Chris Crawford from Atari. Chris is one of Atari's premier programmers and, I am told, a delightful speaker. We will also have additional topics and speakers to fill out the two period hour from 10-noon.

You have probably noticed that over the last couple of months I have touted the virtues of the Chalk Board PowerPad touch tablet. I have now had some second thoughts. I still stand by my praise of Chalk Board's support of the product and still like its large size and multiple contact capability. It's musical program is very good because of these features. However, as a drawing tool it now seems to me that it falls quite a bit short of the Atari or Koala touch tablets. The three tablets all have a version of the MicroIllustrator program, but the response of the Chalk Board is not as good. It is not as able to keep up with the artist as he or she draws and the lack of a button with "feel" for pen up/pen down is an annoyance. If this were the only touch

tablet on the market, I would strongly recommend it, but when you compare it with the competition, its strong points are not enough to bring it to the top of the list. I apologize for having gotten carried away with my initial enthusiasm. The lesson here is to check out all the merchandise before making up your mind.

HAVE YOU GIVEN YOUR TWO HOURS PER YEAR TO JACG YET? IF NOT, WHAT ARE YOU WAITING FOR?

Richard Kushner-JACG President

JACG

We Get Letters...

129 Eleventh Street
New Market, N. J. 08854

March 15, 1984

Mr. Frank Pazel
Editor
JACG Newsletter
14 Whitman Drive
Denville, N. J. 07834

Re: BITS and BYTES - 12-part TV Series
on computers (Channels 23, 50, 52 & 58)

Dear Frank:

In the March newsletter you made a passing reference to Bits and Bytes. It is now scheduled to be aired beginning Saturday, April 21 at 5:30 p.m. for half an hour (repeated on Sunday at noon) for 12 Saturdays.

The titles for the 12 parts are: Week 1) Getting Started (introduction to and mechanics of a computer); 2) Readymade Programs; 3) How Programs Work; 4) Storing Information; 5) Communications between Computers (Modem); 6) Computer Languages (Basic, APL, Logo); 7) Computer Assisted Instruction (Pilot); 8) Simulation and Games (introduces you to a top Atari games designer); 9) Computer Graphics; 10) Computer Music; 11) Computers at Work (word processing & spreadsheet); 12) What Next? (opinions of experts).

This 12-part TV series has been made possible by grants from the NJ Institute of Technology and the NJ Department of Education. Although the same characters are involved in this series, and produced by the same TV Ontario (about whom you have mentioned), supposedly this series goes deeper into computer. The first part, Getting Started, gives you an inside look at the mechanics of computer. It may prove to be educational since Academy on Computers is offering a course for \$70 based on this series. Of course, the course materials are specifically designed for Atari (among other) computers.

Sincerely,

Manuel Ayres
Manuel Ayres

P. S. By the time this letter appears in the next Newsletter, the enrollment for the course will be over. However, it is likely that the course will be repeated.



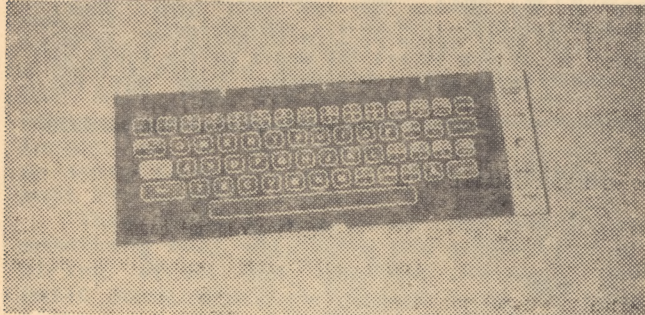
ON THE RETURN OF THE PLANETARY DISCOVERY

News and Views By
Arthur Leyenberger
Editor-at-Large, JACG Newsletter

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Atari sells keyboards to IBM

It seems that Atari had a problem. With all of the 400 users upgrading their keyboards to full stroke units, there was a whole warehouse full of Atari membrane keyboards to unload. Just when Atari thought they were going to have to write the whole thing off as a tax loss, IBM introduced the PCjr.



The reaction of industry experts to the PCjr's chiclet keyboard caught IBM off guard. In a typically clever IBM marketing move, IBM has signed an agreement with Atari, the game machine maker, to purchase all of those extra membrane keyboards. Sometime early next year you will be seeing the IBM PCjr with a truly useable membrane keyboard instead of the inferior chiclet type.

Coleco Announces Atari Incompatible software

You may remember a few months ago when the demand for Coleco's Cabbage Patch Doll was so overwhelming that production had to be slowed on the Adam computer. Now that the rush is over and Coleco can return to making the much heralded Adam, they have decided to begin marketing a new line of software for the Atari (of all computers).

Management's thinking went something like this: We announced the Adam months before we even knew that it would work and look at the press coverage we got. It still does not work so well but when we finally get the bugs out, we will sell a million of them. Then we deliberately caused a shortage of Dolls and the public went crazy. How about doing the same thing with software.

Called Cabbage Patch Software, this line will include a data processor, a word base and a graph-fix program. The manuals will be really ugly and the software will be so awful that no-one will want to buy it, let alone adopt it. This will add to its charm. It is being announced now but will not be available until the Christmas season. Then, there will not be enough product to meet the demand that will be created by the starting of rumors about allocations and empty warehouses.

New CMOS 6502 Chip

It has just been announced that a new low power version of the venerable 6502 microprocessor will be included in all new Atari 400/800 computers. The 65C02 chip is completely bug compatible with the existing 6502 and offers a few additional opcodes for use by serious programmers. These opcodes should allow serious business software to finally be written for the Atari which will help change the unfounded game image that the computer currently enjoys. Listed below are just a few of these new opcodes:

- BNR - Branch for No Reason
- CMD - Create Meaningless Data
- DRA - Decrement Random Address
- EDR - Emit Deadly Radiation
- ICR - Incur Costly Repair
- JIL - Jump to Inaccessible Location
- LLI - Lose Last Instruction
- PRS - Push Results off Stack
- RIS - Remain in Subroutine
- SHB - Scramble High-order Bit
- TEC - Take Extra time for Calculation

Wells to Replace Alda

It seems that Alan Alda's reign as chief spokesperson for Atari has been short-lived. Less than a year after Alda discovered Atari, or vice versa, Atari has announced that Orson Wells will become the new spokesperson. Wishing a larger presence in the low end home computer market, Atari believes that a new face will help round out their image.

Mr. Wells will appear in TV, radio and print advertisements. Consistent with the introduction of Atari's new line of hardware, the advertising campaign will be centered around the theme of "We will sell no computer before it's time". Mr. Alda was not available for a witty comment.

Patent Medicine and Elixir Dept.

One of the problems associated with being an Atari computer user is that feeling of paranoia. You know, the whole world thinks that the Atari computer, is simply a game machine no matter how much you tell them it is a real computer and that you are developing a PASCAL based operating system environment.

If you've got those Atari paranoia blues, there may be help for you. Gimme a Break Software from Silicone Valley, CA has a new self help program that will have you playing a symphony on the keyboard in no time. Called InVisiBlues, the first in a series of Self-improvement Optimized Software (SOS), this stand alone program uses Transaction Algorithms, or TA, to help you recover from byting off more than you can Que. This stand alone product stands out as a serious attempt at helping Atari users stand up and overcome their feeling of inferiority by having to stand aside when other computers are mentioned.

UACG

This is your newsletter,

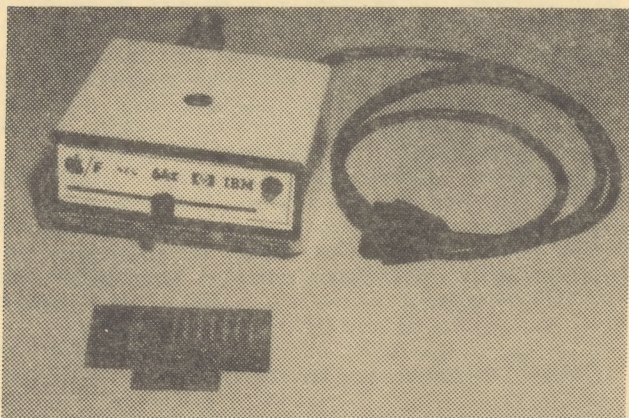
Please contribute to it!

Universal Interpreter Runs All Software!

by Frank Pazel - JACG

In an exclusive interview with Albert Canard, President of the newly formed high-technology company, A-F Industries, JACG has learned of a prototype language interpreter which allows the unlimited running of *any* software on the Atari 800 and XL series of computers! Mr. Canard, who reluctantly allowed us to photograph his company's truly astounding device, insisted that no address or phone numbers be released. He said that since the device hasn't been fully tested he would not want to create any stir in the home computer market by releasing the interpreter before its time.

He further stated that since it "only" interprets disks from Apple/Franklin Ace, NEC, Commodore 64, Hewlett-Packard, and IBM his company would use restraint in their advertising, which is about to appear in several national computer magazines. A-F Industries, an Otsego County, New York based company, wants to be able to include a plug-in card (prototype shown in accompanying photo) which will also run the high quality graphics of the TRS-80 and with switchable select sections make the power of the Sinclair-Timex and TI99/4A available to Atari users.



As visible in the photo the unit is very compact, measuring approximately 3x6x6 inches. It comes equipped with the Atari-type interconnecting cable and needs no external power, picking it up via the I/O port through the supplied wiring. The unit is very solid in feel with a case molded in an off-white plastic complemented in charcoal browns as to be aesthetically pleasing with all makes of Atari equipment. Computer widows will be very pleased by this designer touch.

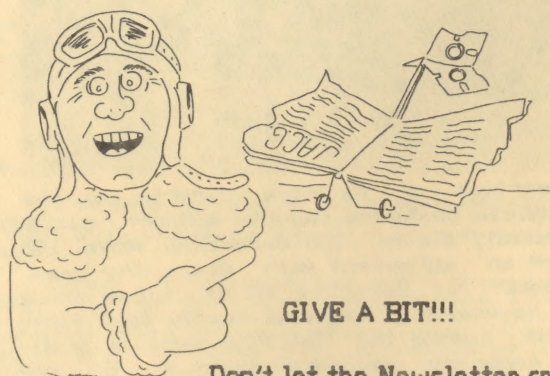
We were allowed to run the unit at the company location and were more than flabbergasted at how well it handled every type and format style of disk. Since the unit is daisy-chained between the computer and the first disk drive everything happens automatically. The large slide-switch is simply set to the click stop position on the front panel indicating which manufacturer's software you are about to load. It is amazing to see programs appear on the CRT with logos and instructions in other computer's lexicon but it also is a little thrilling. We brought along several disks from various friends' and neighbors' non-Atari computers and every single program booted up instantly. The only slight problem encountered

was with a Texas Instrument BASIC program which a friend had written, but you know how complex those machines are. Mr. Canard assures us this problem will be corrected prior to the first mass production run.

Anticipated price of this handy peripheral is in the \$89.95 to \$94.95 range. This may seem a little high for such a little box but development costs and an initial run of under 2000 brought costs up. If the unit takes off the second run may cost under fifty dollars. Atari is reportedly interested in producing it for \$559.95 with no technical support.

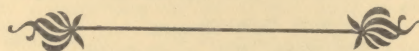
I think this could be an exciting piece of equipment to own, though it clearly doesn't appeal to everyone. Mr. Canard tells me the ads will identify the device by its full name: Atari Primary Interpreter/List/File/Output/Other Languages. It is due to hit the media on the first of this month using only its acronym. Look out for it.

JACG



GIVE A BIT!!!

Don't let the Newsletter crash!
Contribute an article this month.



ELEGY WRITTEN IN A COUNTRY CHURCHYARD ON AN ATARI COMPUTER

By Thomas Gray

The curfew tolls the knell of parting day,
The lowing herds wind slowly o'er the lea,
His homeward way the ploughman, weary, plods
His homeward way the weary ploughman plods
His homeward weary way the ploughman plods
His way the ploughman homeward, weary, plods
His way the ploughman, weary, homeward plods
His way the weary ploughman homeward plods
His weary way homeward the ploughman plods
His weary way the ploughman homeward plods
Homeward his way the ploughman, weary, plods
Homeward his way the weary ploughman plods
Homeward his weary way the ploughman plods
Homeward the ploughman plods his weary way
Homeward the weary ploughman plods his way
The ploughman homeward, weary, plods his way
The ploughman homeward plods his weary way
The ploughman plods his weary homeward way
The ploughman, weary, his homeward way plods
The ploughman, weary, homeward plods his way
The ploughman, weary, plods his homeward way
The weary ploughman plods his homeward way
The weary ploughman homeward plods his way
Weary, his homeward way the ploughman plods
Weary, the ploughman his homeward way plods
Weary, the ploughman homeward plods his way
Weary, the ploughman plods his homeward way
And leaves the word to darkness and to me.

Getting Down to **BASICs** by Dick Kushner-JACG

This month we'll look at another section of my book "Basic Atari BASIC", which will finally be out by the time you get our next newsletter. I was beginning to wonder if it every would see the light of day, but, as they say, good things take time (like fine wine, etc.) This section is from the chapter on arrays, and discusses how to create the equivalent of string arrays using Atari BASIC.

Several implementations of BASIC allow you to have arrays of strings that can be used and manipulated just like arrays of numeric variables. Atari BASIC does not have this feature. Recall that DIM A\$(X) has a very different meaning for strings than DIM A(X) has for numbers. A\$(X) defines a string named "A\$" that will have a maximum length of X characters, while A(X) defines an array to be called "A" that will have at most X+1 numeric items in it.

This doesn't mean that we can't make something that will have the properties of a string array and use that instead. Atari BASIC does permit strings to have any length right up to the amount of memory that is available, which will make a very long string indeed. We will use this capability to make an array of string data where, instead of the strings being stacked one beneath the other, the strings will be one right after the other in a single long string. We will need to impose one important limitation: all the strings must be the same length. This will permit us to find where each little string is within the large string. This sounds impractical, of course. Why should all the strings just happen to have the same length? They won't, of course, but we will force them to be that way to adding blank spaces to each of them to get them all up to the length of the longest one.

Consider, for example, the days of the week. Check them over and you'll find that Wednesday is the longest, with nine letters. We will, therefore, DIM a string for our array with a length of $9 \times 7 = 63$ characters for all the days of the week. Program 6-5 reads the days of the week from DATA statements, puts them into one string, and then accesses the pieces of that string to recall the individual days.

```
90 REM * READ AND DISPLAY DAYS OF THE WEEK
95 DIM WEEK$(63), DAY$(9)
100 FOR DAY=1 TO 7
110 READ DAY$
115 IF LEN(DAY$)<9 THEN DAY$(LEN(DAY$)+1)=
" ":GOTO 115
120 WEEK$(LEN(WEEK$)+1)=DAY$
130 NEXT DAY
190 REM
200 FOR DAY=1 TO 7
210 PRINT WEEK$(9*(DAY-1)+1,9*(DAY-1)+9)
```

```
220 NEXT DAY
230 END
990 REM * DAY DATA
1000 DATA SUNDAY
1010 DATA MONDAY
1020 DATA TUESDAY
1030 DATA WEDNESDAY
1040 DATA THURSDAY
1050 DATA FRIDAY
1060 DATA SATURDAY
```

Program 6-5. Display the days of the week

In line 95 we DIM two strings, DAY\$ for one day and WEEK\$ for the entire week. In line 115 we add on spaces if the string for a particular day is not as long as the string for the longest day, Wednesday. If the string is shorter, line 115 keeps adding spaces until it reaches a length of nine characters. Line 210 then pulls apart this long string to get at the days. We know that each day in the string occupies nine characters (including extra spaces). Thus, the first day starts at WEEK\$(1,1), the second at WEEK\$(10,10), and so forth. Our calculation takes the next nine characters in WEEK\$, starting at each of these values, and prints them. We will be using this sort of calculation to locate portions of strings again and again, so go through it with several of the days to see how it works. We had our DAY loop run from 1 to 7, since the days run from 1 to 7, but this is really arbitrary. We had to put (DAY-1) into the calculation in line 210 to correct for this. If we had made the DAY loop go from 0 to 6, we could have simplified the calculation a little. People don't like to count from zero, however, so we avoided it here.

Once the string data are stored as part of a long string, we may manipulate them in many ways. It may be that on a report we want the days of the week spelled out in one place and abbreviated in another. We can do this with our ability to take any portion of a string we want. To get the abbreviations of the days, we merely need to take the first three characters of each day name. We already know where each name starts. We do this with a slight change in line 210.

```
210 PRINT WEEK$(9*(DAY-1)+1,9*(DAY-1)+3)
; ;WEEK$(9*(DAY-1)+1,9*(DAY-1)+9)
```

The book then goes on to develop this concept further with more examples and programs. Next month a peek at the chapter on GRAPHICS.

□□□□□□□□□□

Have You Renewed...

YOUR MEMBERSHIP IN JACG?

There's pride in belonging
to the best!!!

□□□□□□□□□□

Copyright (c) 1984 by Arthur Leyenberger

The Mall Game

A software product introduced by General Giant (the supermarket chain) is a game called Bloomie's: The Mall Game. Packaged in the distinctive no frills white box (see photo), this game has a lot going for it.



You begin the Mall Game by selecting one of three different shopping center scenarios. One choice is a strip or convenience mall. This includes a dry cleaners, bakery, drug store, a bagel shop, an ethnic restaurant and a supermarket anchor store. The second option is a small regional shopping mall. There are two anchor stores, Sears and Penny's, and maybe another 30 different stores. Included in this type of mall are at least 3 of the following types of stores: jeans, books, records, gift and jewelry. There is also an area of ethnic fast food stands.

The most challenging mall option is the triple decker, mega-store super mall which has four anchor stores and over one hundred individual stores. There are even 12 movie theatres, six at one end and 6 at the other end. It was this mall that I selected to evaluate the game.

The game begins with you trying to find a parking place. Extra points are awarded if you can cut in front of someone else. However, if there is a collision, points are deducted from your total score. Next, you are presented with a shopping list. My list included a pair of brown Levy's, a birthday card for my mother-in-law, the most recent issue of Creative Computing, a Tangerine Dream album, some boxer shorts, a set of nany moon hubcaps and a pound of fudge. This particular random list was incredibly realistic, at least for me. The object of the game is to obtain the required items in the shortest amount of time.

Next, I entered the mall through Sears. I immediately had to make my way through the appliance section without having any of the salespeople approach me. Extra points are awarded if you can manage a fake in one direction or another, enough to lure a

salesman toward you while you continue walking. This is some trick and requires much practice. Many times I would attempt a fake, only to be approached by a salesman with an offer to buy a Lady Kenmore freezer from out of nowhere. If this happens you must select from a menu of responses which include, "just looking", "why yes, please give me a demo" and "sure, that will be a charge".

As you move throughout the stores, smooth scrolling is used very effectively. Remember, your entire shopping trip is timed with more points being awarded for acquiring your shopping items more quickly. Once you get out of Sears (and I thought I never would), you come upon the main concourse. The first task is to find the directory and locate the stores that you must find. The various store locations are randomly generated for each game. I played one game where, as in real life, I could not find any store directory, and ended up having to flatfoot it around the entire mall.

Occasionally, the restroom icon is seen at the top left of the screen and you have two minutes to find the ladies or mens room. Needless to say, an uncomfortable number of points are lost if you fail to reach your goal. For every 500 points, you get to visit the ethnic fast food area and can choose from among Gyros, pizza, sno-cones, tacos and wonton. The different foods are presented quite graphically. If you select something, you must find a place to sit and eat your treat in one minute. Taking someone else's seat is rewarded with extra points, unless of course the person wants to fight. Then you get to scam as fast as possible.

There are other obstacles that you must successfully avoid. One is a stroller attack. This can take several forms from having to simply go around three side-by-side strollers to being surrounded by strollers with babies crying and no escape. One hint, stay away from the Penneys store. It seems that everyone in that store is pushing a stroller.

Another obstacle to avoid are teen-age "mallies". You know the type: plug-compatible, chewing gum-snapping adolescent females and dumb-looking, shoelaceless, running shoed males. These are probably the most often occurring hazard. It seems like they just hang out and are to be found everywhere.

Once you have picked up all of the items on your shopping list, you must go out the way you came in and find your car. Once again, just like in real life, I always seemed to have trouble finding my car. The game ends as you enter your car. You then get a "shopper rating". Some of these are Clearance Sale Clod, Grand Opening Shopper, Summer Sale Specialist and the coveted Professional Christmas Shopper. My highest rating was Summer Sale Specialist.

The Mall Game, written by Jean Backes, is a very clever game. I find it most appealing because I can relate to it so well. There are many common shopping occurrences that have been built into the game. It is almost as much fun as actually going to a mall. As the first game entry of NoFrillsware, not a bad job.

The Famous Planet Missionary

How many times have you seen a new game at a computer store or a friend's house that really blew you away and prompted you to go out and buy it immediately? Ok, put your hands down. Now, how many times has that same game that originally knocked your socks off failed to elicit a response greater than a yawn after only a few hours of play? Right, I thought so. I have had the same problems.

Sure, there are some classic games for the Atari computer like Space Invaders, Missile Command, Miner 2049er and Pinball Construction Set that have essentially a timeless quality about them. But the majority of computer games become BORING after only a few hours of play.

About a year ago I reviewed a game called Planet Missionary in this very Newsletter. The game was from a company called Magical Software and was **awesome**. Elsewhere, the game had been referred to as the sleeper of 1983. That is a pretty good description because the game was never released. This has led some people to think that I made up the whole thing as some kind of April Fools joke.

I have spoken to people that are very close to the game and they tell me that it will be released in 1984 under a slightly different title. I promised the folks at Magical Software that I would only show the title screen when I reviewed it in the Newsletter because of its proprietary nature. I can understand that given the totally new approach that it represents in game software.

The new game from Magical Software called Planet Missionary: 3-D is amazing. There has never been anything like it and I hope it is an example of things to come.



Awesome opening screen

According to the 320 page manual that comes with the game, the program "... uses a dynamic time warping algorithm which results in an incredible increase in game speed and the ability of the software to allocate more of its processing time to generating the graphic displays. This accounts for the amazing realism that the game projects."

Written by Richard Kushner. the well known underground programmer, Missionary starts out with a Star Raiders type of view out of the front of your ship with the lower portion of the screen given over to a display of ships controls. The 3-D effect makes the various levers and buttons appear to be sitting in your lap. Each command that you enter either via joystick or keyboard is reflected both in the movement of the ship and on the control display panel. The excitement begins as the very real looking planets and asteroids pass by you. These graphics are of the same caliber as used in the game Astro Chase sold by Parker Brothers but the 3-D effect has you turning around in your seat to see if the objects have passed behind you.

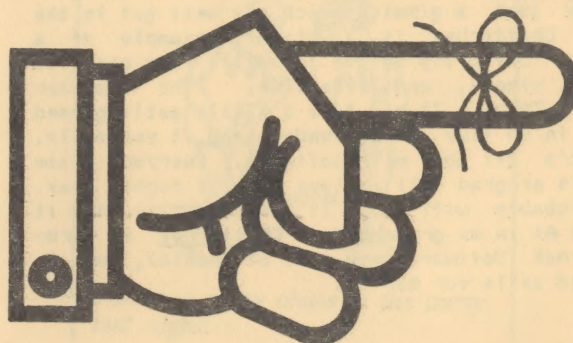
You have orders from the Intergalactic Council of Churches to proceed to a specified star system, approach a particular planet and reform the inhabitants. The inhabitants of the planet may be hostile, deranged, civilized or friendly. Once you approach the designated planet and establish communications there are three alternatives: you may be given permission to land, have to negotiate for landing privileges or be attacked while you are still in orbit. If you happen to be attacked, one view of the raging battle from above is similar to that of the star fights between the U.S.S Enterprise and the U.S.S Reliant seen in the movie, The Wrath of Khan.

Should you be able to land on the planet, you will see the most stunning landing sequence ever depicted on a video screen. Once you have safely landed, the game becomes a text adventure. You must find where the major population centers are, who the decision makers of the planet are and what religion(s) currently exist. You must also decide on a strategy for best accomplishing your goal of converting the entire planet to the religion of Universal Truth.

Several alternatives are available for your use in the conversion process. Education, medical care, farming and the missionary position are just a few of the techniques at your disposal. A description of these techniques would be too lengthy to include here. A special surprise awaits you if you succeed in converting at least 60 percent of the population.

To summarize, Planet Missionary: 3-D is an exhilarating game whose successful completion is as illusory as is the game play. The game requires 23.75K memory, an expensive joystick and maybe a disk drive. High quality cardboard 3-D glasses are included with the game.

JRGG



DON'T FORGET!

Contribute an article this month.

The Report Card

by Frank Pazel - JACG

One of the most prolific writers of programs and articles for the Atari is Jerry White. Quality attends Mr. White's quantities as anyone who has had the pleasure of experiencing his work will attest. He seems to have a driven need to prove that the BASIC language is deserving the name of high level and constantly demonstrates that just about anything can be accomplished in that dialect. This month's review is a shining example of that drive.

Among his most recent creations is a delightful program, co-authored with Randy Simon, called Chatterbee. The premise is simple. You are a participant in an old fashioned spelling bee (get it?) which is hosted by a rotund and friendly honeybee. The host asks you to spell words by typing them on your keyboard. Yes, I mean ASKS. The very clever Software Automatic Mouth (S.A.M.) has been incorporated into this program so Mr. Bee not only announces the word you are to spell, he also uses it in a simple sentence, just like a real spelling bee. Unlike the original S.A.M., Chatterbee does not blank out the screen during voice synthesis. Each letter is announced as you type it in and it appears in large graphics two characters. If you decide to backspace a character out Mr. Bee changes his facial expression and loudly says, "Oops!" After each word you press RETURN and are either rewarded with a positive spoken sentence or given sympathetic consolation and asked to try again.

You are scored on how well you spell. You are penalized for incorrect spelling or too many "oops!" If you successfully complete the level you are working on Mr. Bee congratulates you and tells you the next round will be harder. There are twenty-five levels and you can start at any of them. The first level is for little spellers (one, new, tell) and the twenty-fifth level will really test your mettle (diphtheria, florescent). If you do poorly on a round the Apoidea (while you have your dictionary out for the game, look that one up) lets you know you will be challenged a full level down.

This program is a clever and thoughtful use of the computer in an educational setting. One of the criteria I use when evaluating software for learning is whether the material could be just as effectively presented on a printed surface. If it can, then the computer serves no useful purpose and is just a gimmick which may well get in the way. Chatterbee is a classic example of a computer doing its unique job well. The graphics are few, simple, and effective. The computer actually TALKS. It may take a little getting used to but in no time you can understand it perfectly. And it's all done with software. Everyone I saw use this program fell in love with it right away. You probably will too. It's no surprise that it gets an A+ in my gradebook. Chatterbee is from Don't Ask Software (now part of Tronix), runs in 48K, and sells for \$39.95.

FRANK

TEACH YOURSELF FORTH

By Donald Forbes - JACG

The young sheik who inherited his father's harem surveyed his patrimony with a puzzled frown and remarked: "I know what to do...I just don't know where to begin..."

If you felt the same way about learning Forth, then here goes...from the very beginning.

You may think of Forth as a "working assembler language" but what you really do is convert your computer into a standard Forth stack computer, then load the operating system, and then use the resulting dictionary to create whatever strikes your fancy.

You need Steve Calfee's JACG disks 19 and 20, a copy of Leo Brodie's "Starting Forth", as well as a copy of William Ragsdale's 6502 assembler and fig-Forth public domain Installation Manual (call me for a free copy--Morris County phone book). Do a VLIST on disk 19 and you will see that the Forth computer (written in assembler) covers the words from LIT to INPT and PHYSOFF. The operating system (written in Forth) runs from 1+ to VLIST. This is the fundamental vocabulary you need to master.

Forth is the bright five-pointed star in the twinkling black firmament of computer software. The five points of the star are (1) assembler, (2) two interpreters, (3) two stacks, (4) virtual memory storage on disk and (5) the dictionary and editor. As Forth's inventor Charles H. Moore has pointed out, Forth is the synergistic interaction of these five components. Ragsdale's installation manual has been faithfully implemented by Steve Calfee on the JACG disks with extra improvements by others (especially the disassembler). Here, one by one, are the five keys to the Forth puzzle.

ASSEMBLER: You need to know how the Ragsdale's assembler (Forth Dimensions, Jan. 82) works. Here is the code to clear the top line of the current video display--the address at locations 88 and 89 (decimal) points to the top of video memory.
HEX CODE CLR 98 C, A0 C, 27 C, 91 C,
58 C, 88 C, 10 C, FB C, 4C C, 52 C, OD C,
If you want to use the Forth assembler, this code will do the same thing.

DECIMAL CODE CLR TYA, #39 LDY, BEGIN,
88)Y STA, DEY, 0< UNTIL, NEXT JMP, C;

Run DECOMP CLR and you will see that both versions generate the same assembler code. Now place a row of Xs on the top line of the screen, and notice how CLR erases them.

INTERPRETERS: The Forth engine is set in motion automatically with COLD which does a cold start, ABORT which does a warm restart, which calls QUIT--the endless BEGIN AGAIN loop which repeatedly calls the text interpreter INTERPRET, commonly known as the outer interpreter. As you can see from the code, INTERPRET will compile a new word, look for an existing word in the dictionary, convert the input to a number or, if everything fails, issue an error message.

The Forth inner or address interpreter is named NEXT, because it points to the next word to interpret. It uses two pointers: IP (at hex location FB) points to the next word to be interpreted, and W (at hex location FB) points to the word currently being executed. The job of NEXT is to fetch the contents of IP, store it in W, increment IP to point to the next word, then fetch the contents of W and store it in the program counter of the CPU. Forth's power lies in the efficiency of its inner interpreter. Luckily, you don't have to know how it works to use Forth effectively.

STACKS: The program stack (or return stack) holds pointers which Forth uses to make its merry way through the maze of words that are executing other words. You cannot use it to pass parameters from one word to another, but you may "borrow" it temporarily as an extra hand to hold values while you perform operations on the data (or parameter) stack. You can use it in a definition--: ROT >R SWAP R> SWAP; --as ROT does to move the third item on the stack to the top. You can also do this-- >R SWAP R> SWAP --but if you hit RETURN between >R and R> you will crash the system.

Mastery of the parameter stack is the key to the successful use of Forth. Fortunately, you can display the stack at any time with .S which shows the top at the right, or with STACKON which gives a continuous display of the stack (top of stack at the left).

Atari BASIC requires that you know 128 commands and their abbreviations for a full knowledge of the language. In Forth you should know 221 separate commands (words) in the glossary as well as their parameter stack effects--because you have converted your computer into a standard Forth stack computer. Of these, 62 have no stack parameters (input or output), 60 have one, 45 have two, 29 have three, 11 have four, 3 have five, and 3 have six. For example ROT, which moves the third item from the stack to the top, has three input and three output parameters. The STACKON command is a useful way to watch the stack effects (in living color no less!).

DISK VIRTUAL MEMORY: Here is a short program from Ekkehard Floegel's "Forth on the Atari" to use disk block 17 (for example) for data storage.

```
17 CONSTANT START
: #INDEX ( n-a) 2 * 128 /MOD
  START + BLOCK + ;
: FIRST# ( -a) 0 #INDEX ;
: +NR 1 FIRST# +! ;
: !MEM ( n) FIRST# @ #INDEX !
  +NR UPDATE ;
: @MEM ( a-n) #INDEX @ ;
: #INIT 1 FIRST# ! ;
: .CONTENT CR FIRST# ! @ DUP 1 = IF
  ELSE 1 DO I @MEM . CR LOOP THEN ;
```

Now execute the program as follows:

```
#INIT ok
1 !MEM ok
2 !MEM ok
9999 !MEM ok
1234 !MEM ok
FLUSH ok
```

.CONTENT

```
1
2
9999
1234 ok
```

If you do 17 LIST you can see where the numbers are stored. #INIT keeps track of the data.

DICTIONARY AND EDITOR: It is very easy to display memory. The simple statement-- 0 FFFF TYPE --will print all of memory on the screen, or until you hit BREAK. Here is a better program (adapted from Floegel's book) which displays a screen dump in both hex and graphics characters, given the starting address and number of lines-- 0 10 DDUMP. This is a quick way to look at PAD or TIB, the terminal input buffer, or the code for any word in the dictionary.

```
HEX : ASCII ( a-a) DUP DUP 8 + SWAP
  DO I C@ EMIT 3 SPACES LOOP ;
: LNE ( n) DUP DUP 8 + SWAP DO I
  C@ 4 .R LOOP ;
: HDUMP ( n-n') CR DUP .. SPACE LNE
  CR 7 SPACES ASCII 8 + ;
: NR CR CR 5 SPACES 8 0 DO I
  4 .R LOOP CR ;
: DDUMP ( an) HEX NR 0 DO HDUMP LOOP
  DROP DECIMAL ; DECIMAL
```

Run DECOMP on every word in Ragdale's glossary. You will then see just how Forth converts your high-level Forth into low-level Forth to call assembler language which the computer can execute.

To use the editor, just find an empty screen with-- n n INDEX. To clear the hearts from screen 17, say, do 17 WIPE and then 17 UE (for upper edit). Now start entering your program. Do not use the RETURN key. You cannot enter data in the right hand margin, so when you get near the edge move the cursor back to the left with the arrow keys. When you have finished, move the cursor to the line that says DO IT and press RETURN, and then type FLUSH to save the screen to disk. If you should happen to mess up the line numbers with deletes before you finish the screen, put the cursor on the DO IT line, hit RETURN and you will get a refreshed screen with the proper line numbers. 17 LE will let you fill up the lower half of the screen. Type FORTH to exit the editor.

And there you have the big picture and the pieces of the puzzle. Undoubtedly you still have questions. But, unlike our young sheik, you now know where to begin. **JREG**



San Leandro, CA Computer Club

Atari to Challenge Apple?

Annandale-Bell Labs Carpool (1/2 JACB)

Flash!!! The latest news from Silicon Valley is that Atari is finally going to try to take on Apple on Apple's own turf. Rumor has it that Atari is tired of all the news about the capabilities of Apple computers and has decided to produce a comparable model with user-friendly features. Atari will go directly after potential purchasers of the Macintosh with their own machine which they have decided to name after the friendliest thing they could think of--hence the new product the GRANNY SMITH.

The Granny Smith computers will all be sold with a shawl for comfort for hackers forced to work in cold basements and attics. Display will be extra large characters similar to Basic Mode 2 to enable vision-impaired individuals to read the screen. For individuals with even worse vision problems Atari will provide a special CRT ground to your prescription--just order the Granny Glasses option.

Breakthroughs in hardware will enable the Granny Smith to sense the health of the programmer and provide care and support through its Temperature Locating Control (TLC). Of course if a fever is noted the Granny Smith will provide chicken soup through Atari's newly patented "dish drive".

Programmers who have trouble locating old programs and files will appreciate the memory management system in the computers. Based on the FIFO or First In-First Out system, the Granny Smith's memory system will always be able to recall old memories. Newer programs may be a little bit hard to coax out of the memory but programmers working with the system say they have had no trouble getting the Granny Smith to remember old data.

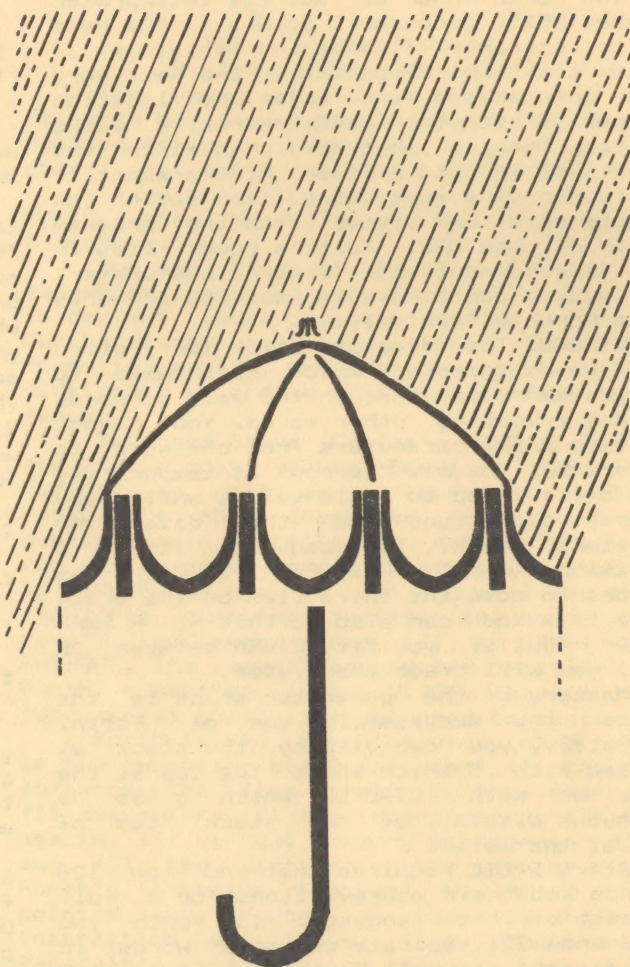
One of the minor annoyances of the operating system is its aversion to x-rated software. Any pornographic material is automatically wiped and flushed by the Granny Smith.

Atari CEO James Morgan is quoted as saying, "My mother in Sun City is very enthusiastic about this machine. She is particularly fond of the ease of input from her favorite chair with the rocker switch keyboard."

WIRE

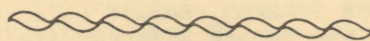
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APRIL SHOWERS

Logo Art by
Frank Pazel/JACG



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Rich on Business

by Richard Rospond - Program Chairman

This article will attempt to compare the 6502 processor of the ATARI computer against other processors on the market.

Who has been getting all the press lately? The PC, PC jr and MacIntosh, all priced out of sight to most of us. What if you had \$2,000 to spend - what would you get for the extra money?

The ATARI uses a 6502 processor, same as the APPLE. The 6502 is an 8 bit processor, the MacIntosh is a 32 bit computer.

The bit designation refers to the amount of information that the processor can handle internally - as in internal registers. Internal registers are storage locations inside the microprocessor. An 8 bit processor (the 6502) has registers that are 8 bits wide, and transmits information 8 bits at a time. A 16 bit processor transfers information 16 bits (2 bytes) at a time. A 16 bit processor can move data twice as fast as an 8 bit processor internally.

Outside the processor is another story. Information moves externally over a set of wires called a BUS. Computers have a data bus and an instruction bus, and they are not always the same size.

A 6502 processor has a 16-bit address bus and an 8-bit data bus.

An 8088 processor has a 20-bit address bus and an 8-bit data bus.

The 8088 is used in the IBM PC. Why does it have the same size data bus as the ATARI? It's easier to use an 8-bit configuration due to hardware considerations, especially ROM requirements. This is why many claim the PC is not a true 16 bit machine.

Why is the address bus wider? It determines the amount of memory the processor can directly address. Using a little arithmetic, a 16 bit bus in a 6502 can address 65,536 locations (2 to the 16th power), but the 20 bit bus in the PC can address 2 to the 20th power - more than 1 Megabyte.

Therefore the main difference between the ATARI 2600 and an IBM PC is the amount of RAM the

processor can address, but they both transfer information over an 8 bit data bus, one byte at a time. Of course the programs written for the PC take advantage of the additional memory that is available.

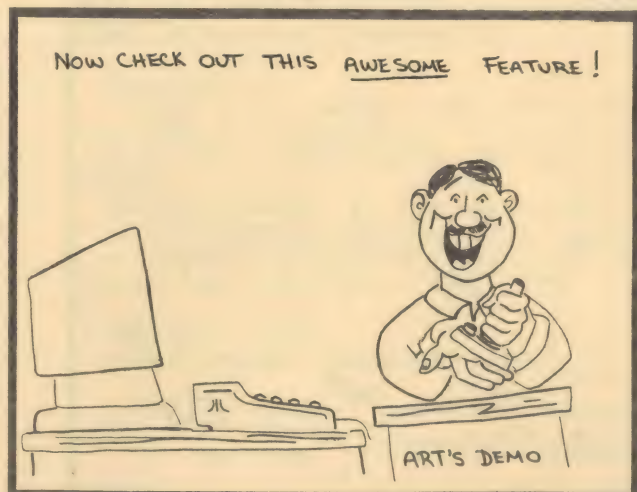
What about speed? A computer processor is clocked, and each part can only work when allowed to by the clocking device. An 8088 has a clock rate of 6 MHz, a 286 runs at 8 MHz, the ATARI 6502 only about 2MHz. Therefore the clock rate can offset differences in the bus, and it is entirely possible that an 8 bit machine with a high clock rate can do a job faster than a 16 bit machine with a slower clock rate.

What about I/O? Now we get really complicated because the data bus, clock rate and external devices all interact. My only comment is that a hard disk has a seek time 10 times faster than a floppy disk drive. If you are considering buying an ATR and running CP/M, programs such as dBASE II are functionally the same, but running it on a PC with a hard disk is no comparison. At work I load the entire dBASE program in 1 second.

What does it all mean?

- The 8 bit ATARI can only address 64K of RAM because it has an 8 bit data bus.
- The 6502 is generally as fast or faster than other 8 bit machines, but much slower than true 16 or 32 bit machines.
- For the money, we got a good deal. If you want to spend \$2000 to \$3000 you can get a better machine.
- Except for a few programs such as LOTUS 1-2-3, most of the best known business, and all home programs, fit within 64K. This includes dBASE II, SuperCALC and WordStar, all which were originally written for CP/M.
- An ATARI with ATR 8000 and CP/M 2.2 gives you a great home computer which can also run some of the best known business applications.

NRCC



80 COLUMNS AND OSS BASICXL

by Benjamin Eng - JACG

The new 16K BASICXL cartridge from Optimized Software Systems is a vast improvement over the original 8K ATARI BASIC cartridge. However, it suffers from one major drawback in that it is not readily compatible with the BIT3 80 column board. The people at O.S.S. are not as shortsighted as it would seem for them to leave out 80 column compatibility when they designed the new BASIC. The problem lies with the way the bank selects are implemented in the ATARI 800 motherboard. Both the BASICXL cartridge and the BIT3 80 column board slots use I/O addresses at D5XX* (D500 thru D5FF) to address hardware latches that switch memory banks in the same address range. The BASICXL cartridge switches two 8K ROM banks at address space \$A900 through \$BFFF and the BIT3 board switches 16-256 byte blocks at \$D600 through \$D6FF.

The solution to this address contention problem is to physically change the hardware addresses of one of the devices. From a hardware viewpoint, it is probably easier to change the latch addresses for the 80 Column board. The hardware I/O addresses are generated on the Operating System board (personality module) by the 74LS138 decoder chip. On that chip, there are presently available two other unused address spaces, D1XX*(pin 14) and D7XX*(pin 7) that were not brought out onto the motherboard because of pin count limitations on the O.S. board. What could be done is to solder an external jumper wire to pin 14 (for address space D1XX*) of the 74LS138 decoder chip and route the wire back to the BIT3 80 column board. On the 80 column board, this wire is to be connected to pins 11 and 12 of the 74LS33 NOR gate chip. These two I.C. pins would have to be isolated from the board by lifting them out of the socket and soldering the jumper wire from the personality module directly to these pins.

The next step is a little more difficult in that it requires access to EPROM programming equipment. The firmware that installs the 80 column board as the screen device is in a 2732A EPROM located on

the BIT3 board. This code must be disassembled and all references to hardware addresses in the D5XX* space must be changed to D1XX*. Therefore, locations containing \$D5 must be changed to \$D1. These locations are (hexadecimal addresses):

0EE	0FB	171	1EE	1FB	2EE	2FB	3EE	3FB	4EE	4FB
5EE	5FB	6EE	6FB	7EE	7FB	8EE	8FB	9EE	9FB	9C9
9CD	9D3	9D7	9DD	9EE	9FB	AEE	AFB	BEE	BFB	CA5
CAB	CAF	CB5	CB9	CBF	CC3	CC9	CCD	CD3	CD7	CDD
DEE	DFB	EA5	EAB	EAF	EB5	EB9	EBF	EC3	EC9	ECD
ED3	ED7	EDD	EEE	EFB	FEE	FFB				

59C	5B8	5BE	5C3	5C9	713	716	74E	754	759	75F
764	767	7A1	7A7	7AC	7B2	7D6	87B	887	88D	B04
B0A	C0A	C0D	C3F	C45	C4A	C50	C55	C58	C93	

Once this reprogrammed 2732A EPROM is re-installed in the BIT3 board, the switch to the 80 column format from BASICXL is still performed by executing:

```
A=USR(54818)
```

and the return to 40 columns is made by executing:

```
A=USR(54879)
```

The USR calls for Microsoft Basic remain the same

The machine language routines to perform the 40/80 column switch are different because of the change in the hardware bank select addresses. The correct routine to switch to the 80 column mode is:

```
LDA #$18
STA $D108 ;SELECT BIT3 EPROM BANK 0
JSR $D623 ;INSTALL 80 COLUMN SCREEN
          ;HANDLER
JMP $E474 ;PERFORM SYSTEM RESET
```

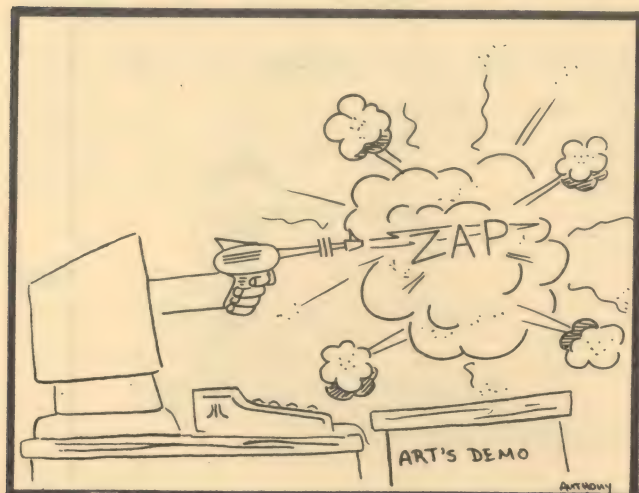
The routine to return to 40 columns is:

```
LDA #$18
STA $D108 ;SELECT BIT3 EPROM BANK 0
JSR $D660 ;REINSTALL ATARI SCREEN
          ;HANDLER
JMP $E474 ;PERFORM SYSTEM RESET
```

There is bound to be some incompatibility with other programs that are capable of driving the BIT3 80 column board.

This is mainly because of the change in hardware bank select addresses from D5XX* to D1XX*. A short term solution is to keep available, the original version of the BIT3 firmware on a separate 2732A EPROM and install a switch to remove the jumper that was placed between the Operating System board and the BIT3 board. A permanent solution is to use a utility like DISKSCAN by David Young to scan and disassemble the application software for all references to address area D5XX* and substitute D1XX*. This could be done with a program like LJK's LETTER PERFECT word processor.

JACG



The Technical Corner

by Ernie Rice - JACG

This month I am going to provide you with a data encryption algorithm written in BASIC. This routine will provide you with one of the finest encryption routines available. It occupies only 18 lines of BASIC to do both processes and to also check its results. A little explanation is involved before we actually hit the code. The technique used is a proprietary technique being made available to the readers of this publication with the understanding that it will never be used by them in ANY COMMERCIAL application without prior written consent from EHR3, Inc.

Now that that is over and done with, here goes...

The approach is one which allows the user to specify a "combination" to be used for the encryption and decryption of their data. YOU specify the number of digits to be included in the combination. (the more digits the safer the data!) Up to 255 digits may be used. This combination must be kept safe, as without it your data will never be able to be restored again!

Note also that if you encode a string which contains, say, all A's, that they will not all translate to the same character! Thus, one place where an L may represent an A, a W may represent it in another. This makes decoding the data almost impossible (even with another computer at your disposal!).

Now, you may say "Why would I ever want to encrypt data?". Good question. Where do you store the Christmas list? What about your own financial records, or personal information? All of these are great candidates for encoding.

The program listed below first prompts for the string to be encoded. You may enter any character string up to 256 bytes in length. Next the program will ask for the number of digits in the combination, reply with a positive integer value. Next you will be asked for the actual values for each of the digits in the combo, once again positive integers only please.

The program will then display the data in its encrypted form, and verify its translation by encoding it once again and comparing the original and the last strings.

Lines 10000 through 10110 accept the input data from the user. Lines 10400 through 10600 encode the data input using the specified data.

Lines 10900 through 11700 display data, and decode the encrypted string for verification. If an error occurs a message "ERROR" will be displayed.

Next month I will show a BASIC program using these routine for simple file use. Until then have a good time encoding...

```
10000 CLR :DIM IN$(256),OUT$(256),TRANS$(256),
      TABLE(126):OUT$="":TRANS=OUT$
10001 ? "STRING OR RETURN":INPUT IN$
10002 IF LEN(IN$)=0 THEN FOR A=0 TO 255:
      IN$(A+1,A+1)=CHR$(A):NEXT A
10100 INDEX=1:TINDEX=1:"NUMBER OF DIGITS":
      INPUT DIGITS
10110 FOR F1=1 TO DIGITS:?"DIGIT #":F1:INPUT X:
      TABLE(F1)=X:NEXT F1
10400 V1=ASC(IN$(INDEX))+INDEX+TABLE(TINDEX)+DIGITS+
      TINDEX+LEN(IN$)
10500 IF V1>255 THEN V1=V1-256:GOTO 10500
10600 OUT$(INDEX,INDEX)=CHR$(V1)
10700 TINDEX=TINDEX+1:IF TINDEX>DIGITS THEN TINDEX=1
10800 INDEX=INDEX+1:IF INDEX=LEN(IN$) THEN 10400
10900 ? OUT$
11000 INDEX=1:TINDEX=1
11100 V1=ASC(OUT$(INDEX))-INDEX-TABLE(TINDEX)-DIGITS
      -TINDEX-LEN(IN$)
11200 IF V1<0 THEN V1=V1+256:GOTO 11200
11300 TRANS(INDEX,INDEX)=CHR$(V1)
11400 TINDEX=TINDEX+1:IF TINDEX>DIGITS THEN TINDEX=1
11500 INDEX=INDEX+1:IF INDEX=LEN(IN$) THEN 11100
11700 IF IN$(INDEX)TRANS THEN ? "ERROR"
```

XIO 38, #6, 0, 0, SAVE \$

by Frank Pazel - JACG

Computing On TV - The List Grows

Last month I listed those educational tv programs I had seen, or heard about, on the area television stations. Since then, I have gotten a much modified list. Not all of these times/channels are verified but I have seen all of the shows at least once. Broadcasters on public channels seem to move program slots rapidly and without much announcement. In any event, here's the list. Good looking.

Sunday:

3:30 & 4:00 p.m., Cable Television Network (CTN), "Making It Count", Boeing Computer Services with Joe Earley. Designed with the more serious computerist in mind, sometimes quite technical, well done.

Monday:

3:00 p.m., NJPT, "The Computer Programme". From BBC sponsored by Acorn Computer, excellent series shown originally last season.

4:00 p.m., Channel 25, "Making The Most of the Micro". Same group from BBC with this year's offering. Also a quality show with a wide range of subjects.

Tuesday:

12 noon, Channel 13, "The Computer Programme".

3:30 p.m., Channel 25, "The Computer Programme".

4:00 p.m., Channel 25, "Making The Most Of The Micro".

Wednesday:

12:30 p.m., Channel 25, "The New Literacy". My feeling this is the best overall show of the season. Produced by the Corporation for Community College TV.

3:00 p.m., NJPT, "The Computer Programme".

4:30 p.m., Channel 31, "The Computer Chronicles". Only have seen this once but it was excellent. It originates in San Mateo (Silicon Valley) and has many features you will really like. Reviews and demonstrates software (even ATARI stuff!!), talks about inside corporation goings-on, etc. Followed by "Random Access", which continues in the same vein during the total half hour. Seems to be associated with Popular Computing magazine. Recommended.

Thursday:

2:30 p.m., Channel 13, "The Computer Programme".

3:30 p.m., NJPT, "Making The Most Of The Micro".

4:00 p.m., Channel 25, "The New Literacy".

8:30 p.m., Channel 13, "Academy On Computers - Bits and Bytes". Elementary and lousy acting but okay for very beginners.

Saturday:

5:30 p.m., NJPT, "Academy On Computers".

Looks like Friday is the lonliest day of the week. <CLR>

ERIC

THE SUPERCARTRIDGE

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OSS has recently introduced BASIC XL and ACTION in a cartridge referred to as the supercartridge. This article will explain the advantages of using such a cartridge and describe in detail how the cartridge works.

The advantage of using the supercartridge hardware is that one can have 16K (K = 1 kilobyte) of ROM and 8K of RAM all within only 8K of memory address space. What this means is more of your precious memory is available for your programs and data instead of being used up by a 16K cartridge or a large applications program or interpreter.

This efficient use of memory resources is accomplished by selectively activating 4K segments of two 2764 (8 Kilobyte x 8 bit) EPROMS. Only two 4K banks out of the possible 4 can be selected at one time.

There are 2 EPROMS located on the supercartridge board that I have designated ROM A and ROM B. The upper 4K of ROM A will always reside in the \$B000-\$BFFF address range when the RAM is deselected. The other 4K banks (ROM B upper, ROM B lower, and ROM A lower) can selectively be mapped into the \$A000-\$AFFF address range. Optionally, all the ROMs can be deselected and the computer's existing RAM can be accessed in the \$A000-\$BFFF memory range.

The bank switching is accomplished by writing to a memory address within the range \$D500-\$D5FF. When this write occurs, address bits A0 thru A3 are latched into a 4 bit register located on the cartridge. The status of each bit determines the current mapping configuration to be put into effect.

The following tables are used to show what each address bit actually does in the cartridge.

A0 always controls the selection of ROM A.
A1 always controls the selection of ROM B.
A2 selects which half of ROM B is used when it is selected.
A3 selects/deselects RAM.

BIT A0

This table shows what portion of ROM A will be used in each address range, dependent on the state of A0.

	A000-AFFF	B000-BFFF
A0=0	nothing	ROM A upper
A0=1	ROM A lower	ROM A upper

BIT A1

This table shows when ROM B is selected. The half of ROM B used is determined by A2.

	A000-AFFF	B000-BFFF
A1=0	ROM B select	nothing
A1=1	nothing	nothing

BIT A2

This table shows which half of ROM B is used when it is selected.

A2=0	Lower 1/2 of ROM B (A12=0)
A2=1	Upper 1/2 of ROM B (A12=1)

BIT A3

This table shows the effect of A3.

A3=0	ROM selected/RAM deselected
A3=1	RAM selected/ROM deselected

Make note that some of these options can not be selected simultaneously. For example, an illegal option would be A0=1 and A1=0. In that case both ROM A lower and ROM B would be selected for the \$A000-\$AFFF address range.

Possible Valid Configurations:

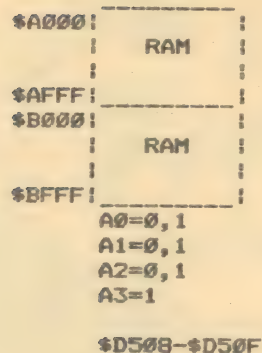
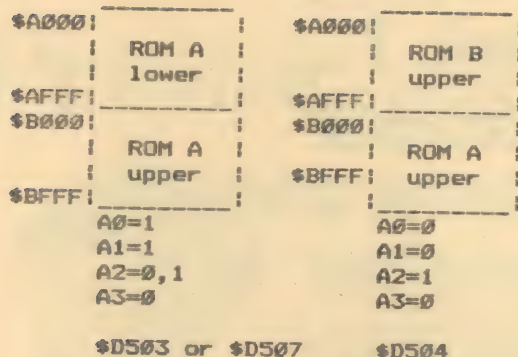
These diagrams represent the segments of ROM and/or RAM that will be activated when the address shown is written to.

\$A000:	ROM B	\$A000:	nothing
	lower		selected
\$AFFF:		\$AFFF:	
\$B000:	ROM A	\$B000:	ROM A
	upper		upper
\$BFFF:			
A0=0		A0=0	
A1=0		A1=1	
A2=0		A2=0,1	
A3=0		A3=0	
\$D500		\$D502 or \$D506	

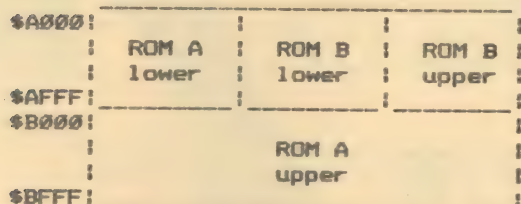
In the ACTION! cartridge ROM A is designated MA and ROM B is designated LI.

In the BASIC XL cartridge ROM A is designated as BAS-H and ROM B is designated as BAS-L.

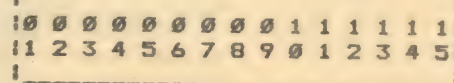
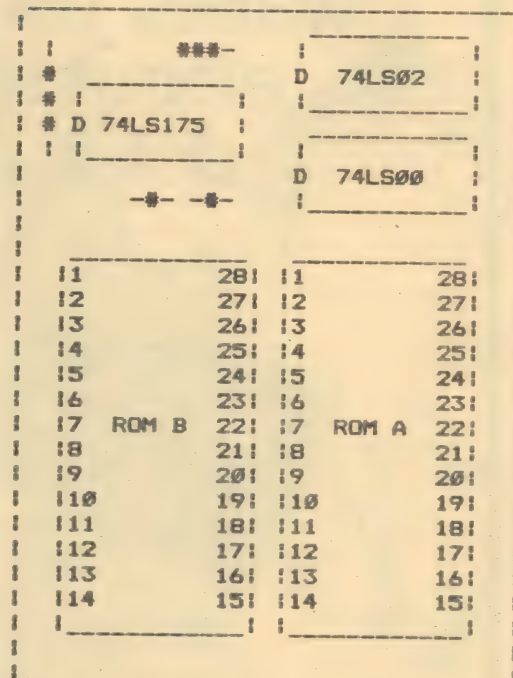
CIRCUIT BOARD LAYOUT



If one was to combine the above configurations into one diagram, you would get something like this representing the possible configurations:



When ROM is swapped out for RAM, the entire range \$A000-\$BFFF no longer has ROM. The ROM can only be swapped out in the entire BK range.



COMPONENT SIDE PINOUT



FOIL SIDE PINOUT

Writing For The JACG Newsletter

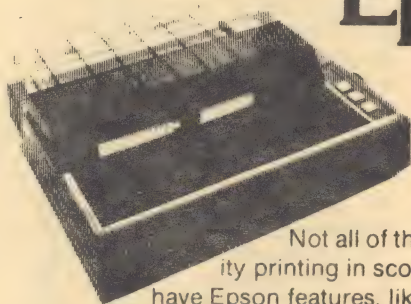
Articles should be submitted to the Editor by the 28th of the month for inclusion in the next issue. Submissions preferred on disk, using LJK Letter Perfect or Atari Writer. Font style should be Elite or Proportional with right hand justification. If hard copy is submitted the final printed width should be 4-1/4 inches from left margin to right margin. All formats will be considered including hand written documents if first arranged with the editor.

We want to encourage everyone to voice his/her thoughts, knowledge, and opinions. Writing will be modified at the discretion of the Editor. No piece will be knowingly altered out of original intent.

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The Seven Cities of Gold

Reviewed by Arthur Leyenberger
Editor-at-Large, JACG Newsletter

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There is no question that Electronic Arts is the premier game company for the Atari computer. They have been in existence roughly a year and already have close to a dozen titles. Many of these games have become classics. You know the ones I am talking about: Pinball Construction Set, Archon, M.U.L.E., Axis Assassin, Hard Hat Mack and Worms.

M.U.L.E., which is an economic simulation taking place on a distant planet, was written by Dan and Bill Buntin of Ozark Softscape. Although difficult to believe, the Buntins have outdone themselves with their new game: The Seven Cities of Gold.

Seven Cities is a first person simulation of 16th century Spanish conquistadors. After outfitting a ship and hiring a crew, you sail the oceans in search of new worlds. When land is sighted you disembark with exploration parties in search of natives, treasures and the unknown. It is your decision to either trade with the natives or conquer them to obtain their valuable gold which you would like to bring back to the homeland.

As the game begins, you obtain an audience with the court seeking gold to fund your expedition. Once you obtain the needed monies you can stop at the pub for a refreshing brew while you contemplate your journey. Using the joystick you scroll out of the pub and pass by your home. It is here that you can assess your status, formulate plans and say goodbye to the misses.

Next stop is the Outfitter where you hire on men, buy food and goods and purchase the needed ships. Finally you embark on your ship and the court wishes you success in your journey.

As your voyage progresses you must navigate by latitude and pay attention to the passage of time. Storms may be encountered and lives may be lost due to sickness. It is important to cross the ocean with the least expense of food and life. At any time you can view the ledger of your cargo in order to continually plan your journey.

Once land is sighted and you bring the ships into safe mooring you must decide on how large an exploration party you want and what provisions to carry. Food is all important but carrying too much will slow your journey. Goods are useful for trading with the natives. And enough men are needed should you decide to establish forts and missions.

During your exploration of the local geography you encounter rivers, lakes, plains and mountains. You can travel at various speeds but the faster you travel and the rougher the terrain will cost you additional food and may slow you down. Once you contact a native village you have several choices. You may give them gifts, trade with them or conquer them. Trading is safer but it is slower and requires many goods. Gift giving may not produce any immediate results except show your good will and perhaps convince the natives to

eventually tell you were a gold mine is.

Conquering is the easiest but it will cost you lives and leave bitter memories. Also, the natives may communicate your hostile intent to other villages in the area. It is best to look for signs to determine the mood of the natives before you choose an approach that may have significant consequences.

After you have traded with or conquered several native villages you will want to get back to your ship before your provisions run out. If you have not paid close attention to your route up till now, you may have trouble finding your way back to the ship. It is not uncommon for you and your exploration party to find yourself lost in the jungle. Starving to death is an unpleasant way to die.

If you do make it back to your ship and assuming they have not already sailed for home without you, you must transfer your supplies and booty back on board before you leave. Then you sail back across the ocean to your home port.

Although your first stop may be the pub for a quick brew, you should visit your home to record your maps and review your journey. Then a trip to the court is in order to bear your treasures for the queen. If you have done well, you will be bestowed with honors and maybe even a title. Then if you can obtain additional funds, you may prepare for another journey.

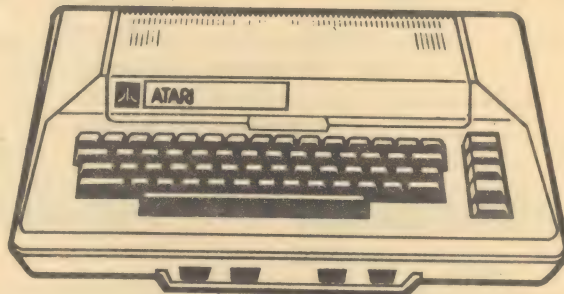
Before you begin playing the game you must create a map disk. You have your choice of using a map of the world as it was known in the 1500s or creating an entirely new world. Creating a new world takes about 10 minutes and provides you with a much more challenging game. Rather than just creating random continents, the new world conforms to geological and cultural principles built into the program code.

There are several features that add to the playability of the game. Your current position may be saved to the map disk at any time. You may then resume the game from where you left off. A new game may even be started with a map disk without disturbing the previously saved game.

Seven Cities of Gold is an engrossing game. I have played it for hours at a time. Electronic Arts has certainly produced another high quality game for the Atari computer. Seven Cities was written by Dan and Bill Buntin, Jim Rushing, Alan Watson and Roy Glover.

Now if you will excuse me, my crew tells me we are ready to set sail for the new world. Wish me luck.

MREG



FAITHFUL OLE BEIGE

NEW JACG SPECIAL INTEREST GROUP FORMS PIG (Poetry Interest Group)

This new sub-group of JACG held its first formal meeting on February 30th and began with a discussion and analysis of the following poem:

JACK (Jersey Atari Computer Keepers)

JACK be nimble,
(to avoid the deluge of Commodores)
JACK be quick,
(to ignore rumors of disaster at Atari)
JACK jump over the candle stick.
(this is:
a) poetic license
b) an allegorical representation of a moth flying too close to the proverbial candle
c) a metaphorical statement using a well known baseball stadium located near Atariland
d) the last line of an old nursery rhyme.)

Our next poetry class will analyze the T.S. Eliot poem "The Hollow Men" as it applies to Silicon Valley managers. Don't miss this timely study. The meeting will take place on April 1st at the Ozymandius Grecian Restaurant.

NRCC

A Kid's Eye View

By P.E. Semel

Electronic Arts Has A New Blue Collar Hero

Since the release of Donkey Kong, there has been a rush of jump-and-climb games for Atari Computers. Games like Canyon Climber, Mr.Robot, and Jumpman have captured the hearts and dollars of game fans everywhere. Miner 2049er from Big 5 even went on to be an Atari classic and a hit game on 15 different systems. So far, all have provided the game player with a different senario each time. The latest entry is Hard Hat Mack by Electronic Arts and it is as good as any other of these games. Hard Hat Mack follows the exploits of our hero as he tries to build a building. Getting in his way are a teen-age vandal and a building inspector, both of which are trying to keep our poor blue collar worker from doing his job. The first screen finds our hero taking girders ad trying to place them into holes. He then has to hammer them in with a jack hammer, that is wandering around the scaffolding. He can climb up the chains to the next floor, or he can use a trampoline. There is even a elevator to take him to the top floor. One of his nemesis are always trying to stop him as are rivets which are shot are Mr.Mack.

The second board finds our player trying to gather all the lunch pails that lie abound. To do this, he must jump on to and off of a girder that is going up and down to each floor. Each floor has a different challenge including a Hard Hat Mack smasher, a stick of dynamite, and two pinchers which always seem to come together, while I am there. The third and final board is equally harder but no less fun. There is only one player but you can start on any level by pressing the appropriate number on the Keyboard. I first played the original of the game on an Apple IIe in school and the Atari version is almost identical. The game is \$34.95 and a must for all the Donkey Kong fanatics.

NRCC

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THE "A TEAM" COMPUTER GAME Reviewed by Richard Kushner-JACG

Clone Software (Truth-or-Consequences, NM) has done a masterful job of bringing this successful TV series to the home computer. For those of you who have managed to miss seeing this TV show (God bless you), a typical episode goes as follows:

A. Some good people are beaten up/taken advantage of/robbed/maimed/etc. by some bad people. You can tell the bad people by their bad clothes, bad haircuts and bad breath.

B. The A Team is called. Like Batman, they always seem to be in the vicinity of a good story.

C. The A Team devises a plan. It is always: a) violent, b) involving vehicles, c) violent, d) difficult to pull off, and, e) violent.

D. The A Team wipes out the bad guys. Bodies fly, bullets fly, but blood does not flow.

E. The A Team is rewarded and drives off into the sunset, the police in hot pursuit.

This is clearly the stuff that good computer games come from. The graphics in the Atari version of "The A Team" are awesome. After all, exploding cars and falling rocks and bodies pounding other bodies are an integral part of many of our current Atari favorites.

In this first episode (yes, the authors tell me there will be sequels), the A Team is called to a town full of Commodore owners, all lined up at the exchange counter of Toys R Us, all crying that they spent good money for a computer but now spend more time in exchange lines than programming. And so the A Team makes a plan as follows: produce several new, reliable computers. Then, while the Commodore gang is diverted, produce software for their computer (and IBM's and Apple's as well). Then things really start to get exciting. Mayhem and fisticuffs ensue, then.....

But, of course, I don't want to give the whole story away. I will say that the end of level one will shock you and wet your appetite for more.

Please note that this fine program will only run on the 1200XL model.

NRCC

ATARI THE SCIENTIST

By Bob Reeves
JACG

The Atari computer is as well suited to research laboratory applications as it is to playing PACMAN and Star Raiders.

We use primarily Hewlett Packard computers in our laboratory for instrument control and data acquisition. I am presently using an HP 9825 with 60K memory in my lab to control an Analog Devices current to frequency converter and a Kiethley digital electrometer. The Kiethley electrometer has an HP-IB (IEEE) interface, and cannot be directly run from the Atari, but the current to frequency converter is an RS-232 device, and can be operated from serial port #1 on the Atari 850 interface. I did not intend to replace the HP with my Atari, so I operated the current to frequency converter only to convince myself that it could be done. The HP is more suited to fast data acquisition and manipulation than is the Atari (but terrible at games).

My first experience with interfacing the Atari to non-Atari equipment was during the debugging of a program on the HP to run the Kiethley electrometer. I brought the HP computer home one weekend. This is one of the earlier HPs, and has only an 18 character LED display and a built in 10 column thermal printer, which makes debugging a long program quite tedious. I thought "Wouldn't it be nice to interface this thing to my Atari and be able to see a larger part of the program, in 40 column format, right on my TV screen!". I had an RS-232 interface card for the HP, and after some experimenting, found I could reverse pins 2 & 3 on one cable, set the baud rates the same, put the HP in 'remote keyboard' operation, and simply connect my modem cable to the HP RS-232 connector and run the HP from my Atari. I spent most of that weekend configuring my Smart Terminal program (Binary Computer Co.) to translate the ASCII codes of my control characters into the control characters that the HP wanted to see. This enabled me to do full logical line editing of HP programs with my Atari, something I couldn't even do with the HP itself, because of its limited LED display.

My next thought was that if I could run the HP by directly connecting the RS-232 interfaces, then I should be able to do the same thing over the phone lines with a modem. I borrowed a Bell 212 modem from work, and hooked another one up to the HP, set them both at 1200 baud, and after wrestling with interface control commands on the HP for a few hours, was running my lab computer from the comfort of my living room. I am able send programs for execution on the HP that I write on the Atari with a text editor, list programs from HP memory to my Atari and dump them to the Epson printer, and take data with the HP and send it to the Atari for storage on disk.

Being a hardware nut, my next project was to try and run an HP Plotter at home. Our mainframe at work is an IBM half duplex system, with some very sophisticated graphics packages which can send output to an IBM 3279 graphics terminal (bisync), a Tektronix graphics terminal, or an HP7221 plotter (both asynchronous). I brought home a plotter, and hooked it up in series with my modem (between the modem and the 850). This plotter works by 'listening' to the line for special control characters from the mainframe which tell it "Here comes the graphics information!", at which point it intercepts all further transmission until it sees another control character which tells it "OK, no more graphics, send subsequent transmission through to the terminal".

After more than a little fiddling, I am now able to send data that I have collected from the HP, and saved to Atari disk, back to the IBM to be included in the plotting routine which is subsequently sent back over the phone to the HP plotter which I have at home. This may sound a bit indirect, but there are no commercially available terminal emulator programs for the HP9825, so I cannot send data directly to the mainframe from the HP. Besides, it's more fun this way!

The HP plotter produces publication quality graphics, both on bond paper and transparency, in four colors, and I find it most convenient to do this type of work at home. Your phone can't ring when it's already off the hook, so interruptions are less of a problem.

Although this plotter can be run directly from the Atari, writing a decent driver for it would be very time consuming, and I am lucky enough to have access to a mainframe where someone else has done all the work. The plotting program we use (Telagraf) is very easy to use, with conversational commands, and doesn't require someone with an extensive computer background.

Our group subsequently purchased an HP7470 plotter, in anticipation of support on the mainframe for Telagraf. This is an economical two pen plotter that is currently being advertised for home/business applications in some magazines, and lists for \$1550, versus over \$6000 for the HP7221. The software revision which will output to this plotter has not yet been installed on our mainframe, so I decided to write some simple drivers for this plotter on the Atari.

The manual with the plotter gave explicit instructions for interfacing to HP computers, the Apple, the Pet, the IBM, and the Osborne, but never even mentioned the Atari. Someday, the rest of the world will come around! All that was required to get the Atari to talk to the HP was to reverse pins 2 & 3 again on my modem cable. The Atari 850 interface returns an error code if it tries to send data and the device isn't ready, so I was able to implement "hardware handshaking" with little difficulty. Most plotters are extremely

By P.E. Semel

A-T-S-P-E-L-L-E-R Spells Great

slow compared to the data transmission capability of the computer, so you must somehow slow down the computer so as not to send data to the plotter faster than it can respond. The response of the plotter is not only a function of the set baud rate, but also of the amount that your data asks the pen to move, and thus is constantly varying. "Hardwire handshaking" is the easiest to implement, because it is basically taken care of by the computer itself, and requires a minimum of programming (trapping an error when the computer gets ahead and resending the data).

I have not written anything that will give Telagraf any competition, but had a lot of fun, and learned a little, by experimenting with this plotter.

Note that I am really using the Atari more as an intelligent terminal in most of the above applications than as a full-fledged laboratory computer, but it has performed above my expectations as a very useful laboratory tool, and has in fact allowed me to do many things that I simply could not do with a much more expensive HP computer.

So behold, fellow tinkerers, we've got quite a machine here for such a small investment! Don't let anyone tell you, "The Atari is nice for games, but.....".

PRICE



Art Work by Roy Kushner, Age 13
Using the Atari
Touch Tablet
Printed on an Epson printer
using Color Print

I cannot spell. I admit it, I cannot spell. So what am I to do when I have a report to do? A few weeks ago, that question would remain unanswered but now APX gives a perfect answer. ATSPELLER by R. Stanley Kistler is the long awaited spelling checker which you have been waiting for so long. Atari even mentioned it in their advertisement for the Atari Writer cartridge. But is it any good. No, it's amazing. This is the best program from APX since Caverns Of Mars. Its that good!

Atspeller is menu driven and easy to use. The first menu gives you choices of what you want to do. You can have you mistakes put on the screen or on your printer, or you an correct them as you go along. You may also search the dictionary or make your own. When you chose to have your mistakes outlined on the screen, they appear in inverse. If you chose the printer option, there are few restrictions. Your choice of printers are restricted to two categories: 80 column or 132 column. When using this option, you chose to either have the whole document printed or just the phrase where the incorrect word appears. In either case, the misspelled word is underlined with a row of X's.

When you are using the "correct as we go along mode", the document is loaded and checked against the entries in the dictionary. When the computer comes to a word that it does not know, you may correct it then or skip over it right away. If you do know, or if you are unsure, you can search the dictionary by entering the first two letters of the word. When you find the correct spelling, you can just skip looking through the dictionary and correct the word. This was my favorite part of this program. Not only was it fast, but it also is very easy, the most amount of letters that you have to type is the amount of letters in the word you have misspelled. You can also create your own personal dictionary which you store on a disk. You would probably use this for names since Atspeller knows over 30,000 words. So far, I have not run across any common words which Atspeller did not know, except for some names. Atspeller is 32K and comes with two disks: 1 for the program and 1 for the dictionary. It is available from APX for \$39.95 and available for either 1 or 2 disk drives.

Sega Launces A Bomb

Sega has become one of the leaders in the video game market for many years now. They have just started releasing games under the Sega label. They offer versions of the games for Colecovision and all Atari systems. The first two releases for Atari Computer have come out.

For those of you who still watch Star Trek on channel 11, you were probably very interested in the Star Trek video game when it came out. To the dismay of many video game fans, it proved to be too hard. Now you can get this arcade game for the home. Unfortunately, it is just too easy. The graphics are nice and the joystick responds well but I found myself racking up points in excess of 300,000.

Sega's other entry is Congo Bongo. This is even worse than Star Trek. You are supposed to be a hunter after a great ape. This is more like spot one chasing spot two. Only two of the original screens are in this version and the ones that are should be omitted. If you really like Congo Bongo, you would be better off writing your own.

K-RAZY SHOOT-OUT Meets The Original BERZERK

When I first got my computer three years ago, my father set down a rule that we could only get one game every two months. With this in mind, my brother and I knew that the game we picked, had to be a really good one. After I received Star Raiders for my birthday, my brother was given the choice the next game. That was when he brought home K-Razy Shoot-Out from what was then K-Byte. As many of you know, this was a copy of the arcade game Berzerk. Now, three years later, Atari has released Berzerk in a cartridge for all Atari Cartridges.

For those of you who are unfamiliar with Berzerk, here's a short lesson. You are a human with a gun. You have to shoot the robots before they shoot you. Then you have to get out before time runs out. Robots do not shoot back until the second level. If you touch any of the robots or the walls, you are electrified. Points are awarded when robots are shot by you or by other robots. You also receive points when robots collide with any anything. Now here are the differences. When time has run out in Berzerk, a bouncing smiley face called Evil Otto comes out of a door and he comes to bounce on you. In K-Razy Shoot-Out, the board is over and you are awarded no bonus points. Another difference is that Berzerk talks. Big deal! It is not worth waiting three years to hear my computer say "Chicken...fight like a Robot!" One other difference is that when the board on Berzerk has started, all the robots can be seen. On K-Razy Shoot-Out, only three can be seen and the rest are transported afterward. This is an advantage because you never know when a robot just might happen to beam in on top of you. One of the only differences in Berzerk's favor are the game options. Berzerk allows two players and you may start on any one of the eleven skill levels. This not such a big deal is one skill level is not much different from another. Berzerk is good, but don't go and throw out K-Razy Shoot-Out. If you're a Berzerk maniac, Atari's version is good, but just a little. K-Razy Shoot-Out is available from CBS for anywhere between \$29.95 to \$39.95. Berzerk is available from Atari for \$44.95. Both are cartridges.

Arcade Machine Makes My Game

At the February meeting, I purchased some thing I have wanted for a long time, The Arcade Machine by Broderbund. This is the program which helps you make you own games without any knowledge of programming. Sounds good, right. It is good but limiting. Upon booting up the disk, you are greeted by a swarm of Galaxians. That game alone tells you what kind of games you can make.

Yes, this makes shoot-em-ups. But the possibilities are endless. One of the best parts of this program, is the Character Editor. This is the part of the program which allows you to change the shape, size, amount, color, and animation of the enemies, explosions and your own ship. Beside this, The Arcade Machine allows you to change the paths of the enemies, and allows you to create backgrounds. Many options are available such as bomb and missile type, frequency of bombing, and shields. When you have finished your game, you can create an auto-booting game complete with a title page. This is one program which I have had for over a month and I still have not exhausted the possibilities. The program also comes with a manual which will explain every thing that you need to know about the program. The Arcade Machine is made by Broderbund Software and is available at most major computer stores.

JACG

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The Jersey Atari Computer Group (JACG) invites you to become a member. Dues are \$20.00 per year and entitle the member to 1) Receive the monthly newsletter; 2) Purchase programs from the group's extensive tape and disk librarys at special rates; 3) Join special interest groups or form new ones; 4) Benefit from the expertise and experience of other Atari computer users; 5) Participate in group purchases of software at substantially reduced prices; 6) Receive a membership card that entitles the member to discounts at local computer stores; 7) Attend monthly meetings to learn about the latest hardware and software, rumors, and techniques for getting the most out of your Atari computer; 8) Submit articles and programs to the newsletter and give demos and presentations at the monthly meetings; 9) Participate in sale/swap activities with other members; and 10) Have a lot of fun.

If all of this sounds good then send a check or money order, payable to JACG, to:

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How To Order



PROGRAM LIBRARY. The legendary JACG library contains programs to entertain, confound, amuse, delight, and assist you. These have been selected from member contributions and by exchange and contribution from other Atari clubs throughout the world. No program is warranted or guaranteed in any way by JACG or any other party, and JACG accepts no responsibility other than to replace at no charge any disk or tape found to be physically defective.

The library is public domain material. It is JACG library policy to not knowingly include in the library any commercial or copyrighted software, except by permission of the owner.

The library is organized into volumes for duplication purposes. While the software itself is considered free to members, and members are free to exchange or duplicate the software, we do charge for disks and tapes. These charges cover costs of media, wear and tear on the library tape and disk drives, and postage.

OBTAINING VOLUMES. The disk library is available at all JACG monthly meetings. Disks may be obtained in the lobby before each meeting. There is a charge of \$5.00 per volume (one disk of programs). We provide the disks.

TAPE VOLUMES. Some but not all of the library programs can be transferred to and will work on cassette based Atari systems. We have two tape librarians who attempt to provide volumes on that media. These volumes (one tape of programs) mirror the disk volumes, except omitting any programs that require a disk to operate. The charge is \$5.00 per tape volume. Owing to the difficulty of maintaining a full inventory on tape, you may have to take potluck, or ask for a specific volume to be custom duplicated for you, to be picked up at the next meeting.

BUT I LIVE IN ALASKA! Yes, we know. You can order disk volumes by mail. These are \$6.00 per volume. Send a check for the proper amount (not cash) made out to JERSEY ATARI COMPUTER GROUP and specify the volumes desired. Send to:

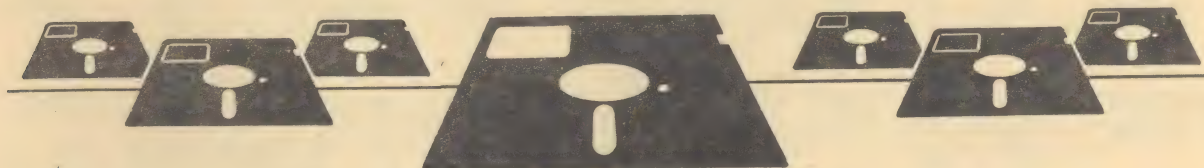
J.A.C.G.
attn D.A. URSEM
37 Clover Lane
Randolph N.J 07869

Do NOT send S.A.S.E or blank disks when with mail orders. The \$6.00 fee takes care of all that.

We DO NOT accept mail order requests for tapes at present. (The solution is to order the disk volume and then visit a friend who has a disk and copy over the programs to tape).

CONTRIBUTIONS to the library are very welcome. Don't be shy - if YOU think what you invented is neat, other members probably will too! Send in your creation on a disk. We'll return the disk with a couple of free programs and maybe some helpful advice on how to make it even more fantastic.

DOCUMENTATION AND ADVICE is the other service your library provides. If you are stuck on a programming or operational problem, or need info about current hardware or software, feel free to give me a call evenings or weekends at (201) 895-2522. We have experience with or information on every programming technique, program, or peripheral that works on the Atari. JACG can't circulate documentation but we can answer questions or get you to someone who can



SIREN.SND	sound	BASIC	sound effect - ENTER into any program	16K BAS	basENTER
EUSTIREN.SND	sound	BASIC	sound effect - ENTER into any program	16K BAS	basENTER
DIVEBOMB.SND	sound	BASIC	sound effect - ENTER into any program	16K BAS	basENTER
LASER2.SND	sound	BASIC	sound effect - ENTER into any program	16K BAS	basENTER
PADDLES.DEM	player/m	BASIC	DEMO -paddle control of p/m objects	16K BAS	basload
BOX.DEM	playfld	BASIC	DEMO - playfield shading for 3D	16K BAS	basload
SPACEART	playfld	BASIC	DEMO - artifacting for GR.8 colors	16K BAS	basload
get 2 colors from a normally one color mode. artifacting means that if you plot 2 dots in a row in graphic mode 8 you get white, as usual, but if you plot only odd numbered or even numbered dots, you get two different colors. try it yourself. many arcade games use this method to get colors in high resolution graphics.					
MLDEMO1.DEM	playfld	BASIC	DEMO - color registers imitate motion	16K BAS	basload
this and the following 2 demos use a common machine language routine poked into memory and executed by a USR call from basic. this routine rapidly alternates the 4 color registers on the fly giving a sensation of movement. if you look closely you'll see that nothing is really moving.					
MLDEMO2.DEM	playfld	BASIC	see above - another demo		
MLDEMO3.DEM	playfld	BASIC	see above - another demo		
PATTERN.DEM	playfld	BASIC	DEMO - kaleidoscopic pattern generator	16K BAS	basload
INKBLOT.DEM	playfld	BASIC	DEMO - gr.7 random inkblot creator	16K BAS	basload
POKEDEMO	charactr	BASIC	DEMO - redefined character & text ctl	16K BAS	basload
STOPSND	sound	BASIC	recognize and stop sound effects	16K BAS	basload
set up as a little game of recognition, this contains 8 sound effect routines that you can steal for your own uses: doorbell, sawing, telephone explosion, clock, siren, whistle, helicopter					
COLORZ1.128	HUMAN	BASIC	utility for color poke values	16K BAS	basload
you select color from a palette using joystick. program reports numeric poke value to obtain that hue.					
GR11	playfld	BASIC	DEMO - 611A mode 11 depth illusion	16K BAS	basload
shows differing colors as random triangles giving appearance of depth or 3D effect					
GR2000	playfld	BASIC	input a number, colored shapes result	16K BAS	basload
PRETTY	playfld	BASIC	DEMO - 5 different themes. motion+3D	16K BAS	basload
COOL	playfld	BASIC	DEMO - 4 options - lines, colors	16K BAS	basload
CUBE.3D	playfld	BASIC	DEMO - motion of playfield objects	16K BAS	basload
displays a square on screen. joystick moves it to form cube which then can be rotated in 8 directions					

DISK volume 014 GRAPH/SOUND 002

DISK FILENAME	CLASSIF	LANG	WHAT IT DOES	REQUIRES	HOW TO LOAD
014 ROMANCLK	graphic	BASIC	displays working clock w/roman digits	16K BAS	basload
ENCOUNT	playfld	BASIC	DEMO - draws ellipse/star	16K BAS	basload
BALAC	playfld	BASIC	DEMO - quadratic random designs	16K BAS	basload
DIGITCLK	graphic	BASIC	working digital clock with alarm	16K BAS	basload
PLAYER	player/m	BASIC	DEMO - player missile graphics	16K BAS	basload
TIMECLOCK	graphic	BASIC	digital clock routine for your use	16K BAS	basload
HELICOPT	playfld	BASIC	DEMO - animated helicopter	16K BAS	basload
BACKWARD	charactr	BASIC	DEMO - DL changes to print backwards	16K BAS	basload
BOW	playfld	BASIC	DEMO - nice drawing of a bow	16K BAS	basload
MOVEABOX	playfld	BASIC	DEMO - guess what? - a moving box	16K BAS	basload
SHADING	playfld	BASIC	displays 3D box. color sides w/jstick	16K BAS	basload
CIRCLES	playfld	BASIC	routine for circle drawing in mode 7	16K BAS	basload
8166LE	playfld	BASIC	DEMO - random quadratic drawing	16K BAS	basload
TEXT	chatactr	BASIC	DEMO - text in graphic modes 8,1,2	16K BAS	basload
PUMPKIN	playfld	BASIC	DEMO - a halloween drawing	16K BAS	basload
KW101	playfld	BASIC	DEMO - drawing in modes 3-11	16K BAS	basload
GRAFIX1	playfld	BASIC	shows x,y coordinates of mode 3	16K BAS	basload
GRAFIX2	playfld	BASIC	graphics drawing with screen save	16K BAS	basload
VIDGRFIT	playfld	BASIC	DEMO - 1-4 joysticks can draw at once	16K BAS	basload
ANIMATE	playfld	BASIC	DEMO - interesting patterns mode 7&8	16K BAS	basload
SUNRISE2	playfld	BASIC	DEMO - a sunrise with nice colors	16K BAS	basload
CHRCLE	playfld	BASIC	DEMO - checkerboard in mode 8 w/color	16K BAS	basload
multicolors in (usually monochrome) GR.8. you change colors via joystick commands					
GRPHMODE	playfld	BASIC	DEMO - good showoff of modes 8-8	16K BAS	basload
GOODNAME	charactr	BASIC	DEMO - hello, here's your name	16K BAS	basload
TITLEMAKE	charactr	BASIC	make titles with moving characters	16K BAS	basload
TRAIN	sound	BASIC	sound effect of steam engine	16K BAS	basload
QUADDRAW	playfld	BASIC	draw in 4 directions at once	16K BAS	basload
SUNRISE1	playfld	BASIC	DEMO - earlier, different sunrise	16K BAS	basload
SOUNDMODE	sound	BASIC	DEMO - joystick controls all 4 voices	16K BAS	basload
GR7NUMBR	playfld	BASIC	graphics 7 numbers with sound effects	16K BAS	basload
GREETING	charactr	BASIC	DEMO - HAPPY NEW YEAR w/flashing text	16K BAS	basload
ULTRAPH	player/m	BASIC	routines for fast move of P/M objects	16K BAS	basload
SOUNDTST	sound	BASIC	change sound using 4 joysticks	16K BAS	basload
XMASTREE	playfld	BASIC	DEMO - displays a decorated tree	16K BAS	basload

DISK volume 015 MUSIC 001

DISK FILENAME	CLASSIF	LANG	WHAT IT DOES	REQUIRES	HOW TO LOAD
015 MUSICMON	composer	BASIC	create music files as basic data	16K BAS	basload
makes a game of experimenting with musical notes. enter notes as basic data statements. refer to the musical note table in your Atari Basic manual for the values to use for each note. be careful in entering line numbers so that you only enter new statements in the number range that the program expects.					
KEYBDMUS	composer	BASIC	write tunes then save to disk or play	16K BAS	basload
TYPETUNE	composer	BASIC	plays notes using keys 0-9 and < or >	16K BAS	basload
TUNERITE	composer	BASIC	create tunes on graphic staff display	16K BAS	basload
both treble and bass clefs are displayed. you enter notes via joystick and can playback or save to disk					

TUNEROTE	for later use. allows only limited number of notes to be entered.	data	data	example file used by TUNERITE	16K BAS	n/a
MC DATA FILES	contains first few bars of she'll be coming round the mountain	data	MC	data files for ATARI MUSIC COMPOSER	16K MC	MC
BASIC DEMOS	requires use of music composer cartridge from Atari. files are	demo	BASIC	programs to play various songs	16K BAS	basload
	each program has one self contained tune. some have graphics accompaniment. includes BACHTF.DEM BACHTL.DEM BACHFS.DEM JAZZ.DEM CHOPSTX PUFF STARKWARS FUGUE FUGUE2 BARNEY OLDMAC MUSICBAR BETHOVEN BLUES.					

DISK volume 016 home/business 001						
DISK FILENAME	CLASSIF	LANG	WHAT IT DOES	REQUIRES	HOW TO LOAD	
016 BOOKLIST	filing	BASIC	inventory/search for your home library	16K BAS	basload	
BOOKLIST.DAT		data	short sample file for BOOKLIST			
HOMELDAN	finance	BASIC	does home mortgage payment calculation	16K BAS	basload	
			given interest rate from 8-30 percent and 30 year term, computes monthly, annual, and total payment for a home mortgage loan			
CALCOUNT	human	BASIC	computerized calorie counter	16K BAS	basload	
			lets you either summarize calories per meal or find calorie content for a particular food			
INVENTORY	filing	BASIC	tape based home filing system	16K BAS	basload	
CALENDAR	human	BASIC	you can record: item, model, serial #, year acquired, value. could be easily modified for disk use.	16K BAS	basload	
			prints to screen in large or small format. you may want to add the option of going to a printer for hard copy.			
BUSINESS	finance	BASIC	performs useful functions from menu	16K BAS	basload	
			menu includes: paycheck calculation, interest on an investment, mortgage comparison, property expense, monthly bar graph, hex/decimal conversion, US/metric conversion, balance checkbook, amortization table, monthly mortgage payment, depreciation schedule, savings and loans, average, square feet and square yards.			
JUSTIFY	human	BASIC	justify printout for ATARI 825 printer	16K BAS	basload	
			requires specifically the 825 printer. you type in text and it is printed proportionally, with right edge aligned			
CHECKING	finance	BASIC	balance your checkbook	16K BAS	basload	
			the proverbial checkbook balancer that justifies all home computers!			
MICROTEX	text	BASIC	computer typewriting system	16K BAS	basload	
			word processor from Softside magazine (used with permission of the publisher). Initially you are given a blank screen with one line of prompts at the top. You type in your text with NO carriage returns except at the end of each paragraph. The program takes care that words are not split across physical lines. When you type a return you will see a "ball". Indenting should be done with space bar and not with the tab key. Text will scroll off the top of the screen as you continue to type but it will not be lost. Use the control key paired with S, L, R, P, or E to access the SAVE, LOAD (disk or tape), REVIEW, PRINT, or EDIT functions. In the EDIT mode you use cursor keys to move thru the stored text. ESC will exit the edit mode. D will delete the line at the cursor. X will delete everything from cursor to end of text. RETURN allows you to edit the line at the cursor. You must then type in your new line which may be longer or shorter than the line it replaces. When you are done, type control-F and the program will readjust all text so everything fits together again, and will return you to the REVIEW mode. Be sure to experiment with the program to understand clearly how its commands work before you type in any amount of serious text.			

DISK volume 017 UTILITIES 002						
DISK FILENAME	CLASSIF	LANG	WHAT IT DOES	REQUIRES	HOW TO LOAD	
017 CARDDRAW	HUMAN	BASIC	subroutine to depict playing cards	16K BAS	basload	
			a very nice routine to build into card-playing programs. the cards dealt are graphically displayed, pips and all			
BARGRAPH	graphCH	BASIC	displays bar graph for 12 months	16K BAS	basload	
			you can enter many sets of titles and annual data as Basic DATA statements. press any key to go from one stored graph to another. Data for three sample graphs is included.			
MESSAGES	graphPF	BASIC	a moving banner routine for titles	16K BAS	basload	
			you can have a message up to 10 chars long. allows large block letters in 4 colors			
SOUNDSTK	sound	BASIC	use joystick to try out sound effects	16K BAS	basload	
			up/down changes tone. right/left alters volume. any diagonal move alters distortion level. trigger changes sound channel.			
BUBLSORT	pgmning	BASIC	numeric sort routine (bubble sort)	16K BAS	basload	
SCANREAD	pgmning	BASIC	full screen data entry technique	16K BAS	basload	
			shows how to have your programs emulate those on large computers using fill-in-the-blank data entry with cursor control to correct mistakes.			
DATASTMT	human	BASIC	help in entering ML routine poke data	16K BAS	basload	
			generates basic data statements for you, you just enter the decimal values and the program does the rest. when finished, LIST the statements to disk and ENTER them to merge into your own program file.			
ERRTRAP	human	BASIC	english language error messages	16K BAS	basenter	
			when your basic program hits an error, this routine traps it, lists the affected line, and describes the error. Follow program instructions to merge this routine into your own programs.			
QUESTION	pgmning	BASIC	answer accept-and-check routine	16K BAS	basload	
			handy for building programs which use true/false or multiple choice question and answer.			
LPDIR	human	BASIC	print disk directory on EPSON printer	16K BAS	basload	
			reads disk contents and prints listing in condensed print font.			
SUPERLTR	pgmning	BASIC	routine to print large screen letters	16K BAS	basload	
DDHELPER	human	BASIC	dungeon master's helper program	16K BAS	basload	
			allows you to design a D&D character or roll dice			
STRNGCRE	human	BASIC	reads ML memory into a BASIC string	16K BAS	basload	
			this is used to create short machine language subroutines or character font data to be stored compactly within your BASIC programs. the program reads a range of memory that has already been loaded with values (via pokes or other means) and will create a basic string containing the identical values. the statements generated are written to any file which can then be ENTERED to merge with your program. This is the most memory-efficient way to store data within a program.			
CNTL1.OBJ	human	ML	lets start key function as start/stop	16K	dosload	
			use option L of the dos menu to load this routine which then coexists with BASIC. it lets the START key function as the control-1 function to halt or resume screen scrolling or other screen output. uses page 6 of memory			
SCRL1.ASM		ASSEMB	source code for CNTL1.OBJ	16K	assembler	
RENUNBER.UTL	human	BASIC	lets you renumber any BASIC program	16K BAS	basload	
			to use, list your program to tape or disk then run this one. give a new file name for list output of your renumbered file. then type NEW and use ENTER to reload the finished renumbered version.			
BUILD.UTL	human	ML	creates a customized AUTORUN.SYS file	16K BAS	basload	
			make any program autobooting (runs automatically when you turn on disk and computer). this program prompts you for one line of BASIC commands and places these in an AUTORUN.SYS file which is executed automatically			

at power up, your input can be several basic commands delimited by colons or just a simple run statement which specifies any program filespec you choose. all JACB disks contain an AUTORUN command of RUN"D:MENU.SYS", which was created by use of this program.

human BASIC lists all variables used in a program 16K BAS basENTER

merge this with the program that you want to examine then type GOTO nnn where nnn represents the line number where NAMELIST begins.

human BASIC disk directory listing while in BASIC 16K BAS basENTER

now you can view your disk directory without having to exit, or wait for to load. for minimal typing rename this file as "E", then just type from BASIC E,"D:E" to see your current directory, this file is actually a series of basic direct commands that are executed as they are entered, it won't disturb your existing program except for line 0 whic it replaces. this command will not work twice in a row unless you hit reset in between.

human BASIC print disk directory using normal font 16K BAS

human BASIC auto-numbering capability as you type 16K BAS basENTER

ENTER this program to merge onto your own then type GOTO 32500 to activate automatic line number prompting.

pgmning BASIC onscreen text in graphics 8 mode 16K BAS basENTER

append then call this subroutine to add text output to any graphics 8 screen display.

pgmning BASIC onscreen text in graphics mode 7 16K BAS basENTER

to use from your program call this routine to poke in the machine language then to print text, use

A=USR(1536,ASC(CHAR),COLOR,X,Y). for example A=USR(1536,ASC("W"),3,20,10) will print the letter w using color register 3 color locating the letter at screen row 10 column 20. to print a word or sentence you must use repeated calls or a loop to handle printing of each letter in sequence.

pgmning BASIC blink any displayed inverse chars 16K BAS basENTER

pokes in a ML program, then a poke 547,6 will cause any inverse text letters to become blinking letters. other function controls are indicated in the program.

pgmning BASIC fast reacting joystick poll routine 16K BAS basload

this allows fast repetitive polling of joystick position for arcade game reaction time. it is noticeably faster acting than the usual BASIC STICK statements.

pgmning BASIC plots entered data on an 825 printer 16K BAS basload

		DISK volume 018		MUSIC 002			
DISK FILENAME	CLASSIF	LANG	WHAT IT DOES	REQUIRES	HOW TO LOAD		
018 HELLO	music	MC	47 music files for ATARI music composer (needs ATARI MC cartridge)				
	classica	lilyofv	joy king	seyensea	row	cat	hallakin
	tip	anitra	jesusjoy	princess	greensle	killero	marketpl
	ariabyds	jcsuper	polka	entern	easy	william	beet
	solace	pomp2	bare	anfuga	bachier	gotellit	pastoral
	sonatads	woeful	f23	minuetto	lamancha	windy	nevermor
	sally	cantina					starwars
							spanfl

		DISK volume 019		SPECIAL 001	
DISK FILENAME	CLASSIF	LANG	WHAT IT DOES	REQUIRES	HOW TO LOAD
019 FORTH	pgmning	FORTH	public domain FORTH language	16K	autoloads
FORTH is another compilable language for the Atari. Most people seem to have either a love or hate reaction to FORTH, certainly it is a unique language, built around a reverse (RPN) language structure, akin to HP calculator languages. But FORTH is FAST .. 5 to 10 times faster than a comparable BASIC program, and it produces very compact code. it has some elements of an interpreter and of a compiler language. converts who have seen the FORTH light swear they can do anything in it .. since they can add new keywords to extend the language itself. And maybe they are right...					
the two FORTH disks in our library are a version of FORTH called FIG-FORTH (written by the Forth Interest Group) that has been extended to include Atari-specific features such as graphics and player-missile commands. Volume 19 includes a short tutorial. But to get the true grasp of the language you should pick up a FORTH manual. We recommend STARTING FORTH by Leo Brody.					

		DISK volume 020		SPECIAL 002			
DISK FILENAME	CLASSIF	LANG	WHAT IT DOES	REQUIRES	HOW TO LOAD		
020 FORTH	pgmning	FORTH	extended Atari-specific forth words	16K vol.19 forthload			
this is the graphics library. to load and use it you must have volume 19 as well.							

		DISK volume 021		SPECIAL 003			
DISK FILENAME	CLASSIF	LANG	WHAT IT DOES	REQUIRES	HOW TO LOAD		
021 SCOPY	DISK	ML	Disk sector copying program	16K	autoloads		
SCOPY is a very efficient disk duplicating program that is very easy to use, it is fine for making backups of a full disk or for copying disks that do not use a normal DOS file structure, such as autobooting disks or FORTH disks. it can be told to skip blank sectors, so many times can copy a whole disk in only two passes on a 48 K machine. it can format disks automatically as it copies. it supports multiple copies and 1 or 2 disk drives. included is a 17 page printed manual of excellent documentation, this disk is not designed to copy commercial programs that reside on copy-protected disks. SCOPY is itself a copy-							

		DISK volume 022		SPECIAL 003			
DISK FILENAME	CLASSIF	LANG	WHAT IT DOES	REQUIRES	HOW TO LOAD		
022 MYRIAPEDE	arcade	ML	16K autoloads				
MYRIAPEDE is a professional quality, all machine language arcade game. it was inspired by and plays very similarly to Atari centipede.							

		DISK volume 023		GRAPHICS 003			
DISK FILENAME	CLASSIF	LANG	WHAT IT DOES	REQUIRES	HOW TO LOAD		
023 photographs	demo	ML	17 digitized photos for screen display	16K	basENTER		
this disk contains 17 photographs which have been read by a digitizer to produce a facsimile screen display in high resolution graphics. they make a stunning slide show. all pictures will begin to display in sequence as soon as you enter the program SHOW. side 1 contains 8 pictures. side 2 contains the remaining nine. side 1 also contains a separate program called SUNRISE.							
random-lady	lady	music	dicchip	tex	squeeze	timemach	winston
tequila	music	worldmap	bessel	william	unclesam	eyes	girlbest
							rocky
							dollar

		DISK volume 024		GAMES 009			
DISK FILENAME	CLASSIF	LANG	WHAT IT DOES	REQUIRES	HOW TO LOAD		
024 CASTLE	graphic	BASIC	an adventure game with graphics	16K BAS	basload		
go through a castle with 6 rooms. find a treasure called 'the book of known'							

DISK FILENAME	CLASSIF	LANG	WHAT IT DOES	REQUIRES	HOW TO LOAD
DEFEND	arcade	ML	a fast action arcade game in mach lan 16K	16K BAS	dosload
			to initialize, use dos L command to load file DEFEND.OBJ. to exit game back to dos hit break then shift/clear then type DOS		
DANGUXB	graphic	BASIC	hit little men, avoid unexploded bombs 16K BAS	16K BAS	basload
VULTURES	arcade	BASIC	interrupt descending birds (inst incl) 16K BAS	16K BAS	basload
GRUBS	arcade	BASIC	climb ladders to stop the grubs 16K BAS	16K BAS	basload
			grubs are trying to destroy the earth. you must climb ladders and dig holes to bury them.		
SPDEMON	graphic	BASIC	a racing car in a graphic maze 16K BAS	16K BAS	basload
TIGERS	arcade	BASIC	can you save your mate from the tiger 16K BAS	16K BAS	basload
			set in Africa. you must help your crew mate by fetching a doctor without being caught by a tiger. to move hold down button and move joystick. your location is shown by your hat. you must stay on the path to win.		
QUEST	graphic	BASIC	adventure. find treasure in the woods 16K BAS	16K BAS	basload
EMPEROR	arcade	BASIC	rings of the emperor - shoot em up. 16K BAS	16K BAS	basload

DISK volume 025 GAMES 010					
DISK FILENAME	CLASSIF	LANG	WHAT IT DOES	REQUIRES	HOW TO LOAD
025 DRAGNZE	graphic	BASIC	two dragons fight in maze 16K BAS	16K BAS	basload
RESCUE	arcade	BASIC	land module and rescue your 6 men 16K BAS	16K BAS	basload
			the button retro fires to slow your descent and fires on takeoff to clear the way ahead.		
GUNFIGHT	arcade	BASIC	two gunslingers in a showdown 16K BAS	16K BAS	basload
ADVENTURE	adventur	BASIC	in a forest with monsters. many opts 16K BAS	16K BAS	basload
FORTRESS	arcade	BASIC	protect your space fortress 16K BAS	16K BAS	basload
BALLOONS	arcade	BASIC	nice shoot em up. birds and many opts 16K BAS	16K BAS	basload
PINGPONG	arcade	BASIC	nice rendition of game. uses paddles. 16K BAS	16K BAS	basload
FROG	graphic	BASIC	for kids 4-8. help frog catch bugs 16K BAS	16K BAS	basload
			a much-enjoyed game, second only to CHICKEN. a big green frog sits in the center of the screen while mosquitos buzz around him. the joystick controls his tongue. paddle can be used also. Watch out, if they get past his guard, those skeeters will sting our friendly frog!		

DISK volume 027 GAMES 011					
DISK FILENAME	CLASSIF	LANG	WHAT IT DOES	REQUIRES	HOW TO LOAD
027 STARBLST	arcade	BASIC	a game similar to DEFENDER 16k BAS	16k BAS	basload
			in this nicely done version, you control your ship via joystick on a constantly moving screen, attempting to shoot all the alien craft that pop up in your path. this is not as fancy, but does capture the flavor of the commercial Atari game.		
MANIAC.OBJ	arcade	ML	a game similar to BERZERK 16k	16k	dosload
			this is obviously the Texas version of BERZERK. the object is to evade all of the tall, moving robots, either by shooting them or by enticing them to walk into a wall. then you are allowed to move thru the doorway into the next (and more difficult) room. you must not touch a wall either, and in the higher levels, the robots will be shooting back at you. Use your joystick to move your player, and the trigger button to shoot. To load this game, you must exit BASIC and use the DOS L command to load the file MANIAC.OBJ. the program will automatically run. to make a version that starts by itself, just copy DOS and MANIAC.OBJ to a blank disk and then rename MANIAC.OBJ as AUTODUN.SYS.		
PACINV	arcade	BASIC	an INVADERS using PACMAN characters 16k BAS	16k BAS	basload
			which do you like more? for those who can't decide, the games of PACMAN and SPACE INVADERS have finally been rolled into one!		
WUMPUS	adven	BASIC	the granddaddy of all adventure games 16k BAS	16k BAS	basload
			from the days of the original ALTAIR home computer, here comes the classic game of HUNT-THE-WUMPUS. the object is to wend your way thru an underground labyrinth of caves, keeping a map of what rooms are connected to what others (or else you'll get lost!) until you find the mythical cave-dwelling WUMPUS. you have the usual arrows to defend yourself, and will get warnings from the computer as you get close enough to smell the WUMPUS. Watch out for the bats that can pick you up and carry you off to unexplored regions!		
CRAPS	simul	BASIC	play the game of CRAPS 16k BAS	16k BAS	basload
JUMPER	graphic	BASIC	guide parachutist onto an island 16k BAS	16k BAS	basload
BATS	graphic	BASIC	fly like a bat, chasing bugs 16k BAS	16k BAS	basload
			press fire button to leap from the plane. if you miscalculate, you'll splashin the ocean.		
GOBBLER	arcade	BASIC	a game similar to PACMAN 16k BAS	16k BAS	basload
			another fine game from Stan Ockers. you control (sort of) the fluttering bat as it goes thru stalagmite-filled caves. alternate pressing and releasing the fire button. when pressed, the bat flaps its wings and rises. release and it loses altitude. Now that you've got the hang of it, try to not only avoid crashing, but intercept the flying bugs as well.		
DETHSTAR.BAS	graphic	BASIC	shoot the deathstar before it gets you! 16k BAS	16k BAS	basload
			rather well-done, with responsive, fast action. maneuver your GOBBLER thru the maze to pick up bags of gold in the cave of the GLDBS.		

DISK volume 028 EDUCATION 004					
DISK FILENAME	CLASSIF	LANG	WHAT IT DOES	REQUIRES	HOW TO LOAD
028 DISCOUCH	COMP SCI	BASIC	simulation of artificial intelligence 16k BAS	16k BAS	basload
			the computer plays the part of a psychiatrist, asking questions of you, the patient. By a technique of parsing your answers, and comparing/joining what you type with a set of canned responses, the machine appears to understand what you say. (for fun, try changing the responses built into the program).		
POLAR	math	BASIC	function plotting in circular coords 16k BAS	16k BAS	basload
			you need to experiment with parameter values in these ranges: (NCR (0-360) is the increment per step for plotting. values are connected by straight lines between steps. (try 30 degree steps as a first look). A and B values may range 0-1. SCALE may range 1-N. if the computed values end up off-screen, they are ignored and nothing will be plotted.		
FNCPLT	math	BASIC	plot a user-supplied function 16k BAS	16k BAS	basload
MATHPRNT	math	BASIC	compose and print sheet of problems 16k BAS	16k BAS	basload
			for arithmetic drills. the program constructs a series of problems and prints them out on your printer, followed by an answer sheet. the set of problems is different every time.		
BIGBOG	english	BASIC	the word recognition game of BOGGLE 16k BAS	16k BAS	basload
			a pattern of letters is shown on screen and the player has three minutes (timed by the computer - a tone signals time's up) to make as many words as possible out of the letters shown. just type in the choices, at the end of the turn the score is shown, and options are to re-use the same matrix, rearrange the letters, or generate a new one.		
TAXMAN	math	BASIC	teaches factors of a number 16k BAS	16k BAS	basload

LETRGUES	english	BASIC teaches alphabet sequence	16k BAS	basload
WORLD	geography	BASIC various quizzes	16k BAS	basload
ALGEGRAF	math	BASIC plots algebraic functions	16k BAS	basload
POLARGRF	math	BASIC polar coord plotting routine	16k BAS	basload
MATH	math	BASIC algebraic calculator with 6 functions	16k BAS	basload
PLOTFUNC	math	BASIC function plot routine in graphics 8	16k BAS	basload
MATHTIME	math	BASIC timed math test	16k BAS	basload
MATHKIDS	math	BASIC same as MATHTIME with difficulty lvl	16k BAS	basload
DIGIDRAW	art	BASIC a well-done drafting package	16k BAS	basload
PILOTADD	math	PILOT 16k PILOT pilotload		
STATS	math	BASIC 16k BAS basload		

comes with 4 functions in menu: rose, daisy, cardioid included. see instructions for POLAR program (above) for parameter range values.

who needs an HP calculator when you have a real computer? this program instantly solves problems in the following categories: least common denominator, prime factors of a number, linear interpolation between two pairs of x,y values, quadratic roots, solution to two simultaneous equations, permutations and combinations.

this routine gives highest available resolution on the Atari. if the lines are too fine to see easily, you can make the program plot dots in adjacent pairs by adding the line \$71 PLOT X+1,Y

this program offers drills with a graphic reward for correct answers. intervals can vary from 5 to 20 seconds.

this version lets you specify the largest number that will be used in constructing arithmetic drill problems.

this is a complete computer-assisted drawing package that can be used (with the help of a screen dump program) to construct viewgraph originals, flowcharts, diagrams, or just plain fun. includes commands for: rectangle, circle, broken line, fill, text annotation, font load/save, screen load/save.

an addition drill written in the PILOT language. requires the Atari PILOT cartridge.

statistical analysis of your data. 16k BAS basload

given a series of data values, this program computes and prints: frequency and cumulative frequency of each discrete value; range; total, mean, median, and standard deviation of the series. Data may be in any order, as the program contains its own sort capability. As provided, you must key in all values to be analyzed. It is usually more convenient to read the series of numbers from a disk file. To modify the program to do this, add these lines:

```
1515 OPEN#2,4,0,"D:MYFILE"
1520 INPUT #2,A$
```

the target data file must have been created with one number per record, carriage return delimited, as by a simple series of PRINT statements. A sample program to create such a file from the keyboard might be:

```
1 OPEN#2,0,0,"D:MYFILE":FOR I=1 TO 1000:INPUT N:IF N<>999 THEN PRINT#2,N:NEXT I
2 CLOSE#2:END
```

in this example prompts will continue until a 'dummy' value of 999 is entered to signal end-of-file.

DISK	volume 029	GRAPH/SOUND 004				
DISK	FILENAME	CLASSIF	LANG	WHAT IT DOES	REQUIRES	HOW TO LOAD
029	HAT	misc	BASIC	plot and dump a 3d 'hat' function	16k BAS	basload
	LOVE	misc	BASIC	print BANNER with permuted LOVE msg	16k BAS	basload
	GROUCHO	misc	BASIC	print GROUCHO's face on printer	16k BAS	basload
	MAGICSQ	misc	BASIC	compute and draw a 'magic square'	16k BAS	basload
	PRTEACH	player/a	BASIC	example of player missile commands	16k BAS	basload
	SPYRO	playfld	BASIC	DEMO - draw a spiral	16k BAS	basload
	SNOWFLAK	playfld	BASIC	DEMO - draw a snowflake shape	16k BAS	basload
	PICCITY	playfld	BASIC	DEMO - skyline example for PICSEE	16k BAS	use PICSEE or PICUSE
	PICSEE	playfld	BASIC	GRAPHICS LOADER for MICROPAINTER	16k BAS	basload
	PICUSE	playfld	BASIC	this program is compatible with pictures drawn and stored using the popular commercial program MICROPAINTER. this routine can be loaded, LISTed to disk, then ENTERED to become part of any program. it allows your program to load MICROPAINTER screen pictures from stored files.	16k BAS	basload
	SPHERE	playfld	BASIC	DEMO - draws a sphere	16k BAS	basload
	TYTLCARD	playfld	BASIC	a rainbow background title card	16k BAS	basload
	BIGFAST	character	BASIC	displays any character 8x normal size	16k BAS	basload
	SPLINE	playfld	BASIC	spline curve fit to any 4 points	16k BAS	basload
	SUNRISE	playfld	BASIC	DEMO - shows a sunrise scenario	16k BAS	basload
	DRAWBTIA	playfld	BASIC	an etch-a-sketch in BTIA mode	16k BAS	basload
	BTIADemo	playfld	BASIC	DEMO - shows off BTIA multihue modes	16k BAS	basload
	PIXELSAV	playfld	BASIC	a screen dump (save) program	16k BAS	basload
	SPASOUND	sound	BASIC	DEMO - gives a hyperspace warp sound	16k BAS	basload
	FONTFLIP	character	BASIC	demo of changing character fonts	48k BAS	basload

this shows the effect of changing the character set font tables. it is supplied with several sets of fonts which can be used in other font changing programs as well. will only run in 48k

jerry.fnt jigsaw.fnt computer.fnt
greek.fnt hebrew.fnt hiero.fnt
bath.fnt fancy.fnt chemical.fnt

DISK	volume 030	MUSIC 003				
DISK	FILENAME	CLASSIF	LANG	WHAT IT DOES	REQUIRES	HOW TO LOAD
030	MUSICFL8	DEMO	BASIC	plays Star Spangled Banner	16k BAS	basload
	TYPTUNE2	composer	BASIC	shows flag and sing-along words onscreen as it plays. has an organ-like sound	16k BAS	basload

assigns notes to selected pattern of keys and then plays as you type. list program for instructions as

EVERGRN.MUS	data	MC	data file for Atari MUSIC COMPOSER	16k MC	MC
XMAS	demo	BASIC	requires use of music composer cartridge from Atari. plays complete song accompanied by onscreen sing-along text.	16k BAS	basload
BUMBOOG	demo	BASIC	BASIC plays boogie in interrupt mode	16k BAS	basload
BUMBOOG.DAT	data	data	this uses data file boogie.dat. it is a version of POKEY PLAYER (see vol.42) so it plays in background mode, even while a program is not running.	16k BAS	n/a
POLYS	demo	BASIC	music file used by BUMBOOG program	16k BAS	basload
SANTA.MUS	data	MC	BASIC plays polyphonic music (multi voices)	16k MC	MC
SANTA	demo	BASIC	data file for Atari MUSIC COMPOSER	16k BAS	basload
			requires Atari music composer cartridge.		
			demo BASIC background music player	16k BAS	basload
			Jerry White provided this demo program to promote a background music player program which he wrote. Our volume 42 provides an equivalent, but public domain program, POKEY PLAYER. SANTA however, shows off how those programs are intended to be used. The data file HOUSETOP.MBD is the (only) file which is compatible and can be read by the SANTA program (well, you didn't buy Jerry's package, so what did you expect, a whole library for free?) Once the HOUSETOP.MBD file is read in, the music for Up on the Housetop begins to play in background. While in foreground, the basic program proceeds to do something else - handle an animated Santa-on-the-roof sequence. And since the Atari rapidly timeslices between designated background and foreground tasks, both activities appear to go on simultaneously and independently. Yep, your Atari can really do two things at once, even if you can't. Note that even if you hit break, stopping the foreground program, the background music task continues blithely on.		
HOUSETOP.MBD	data	BASIC	BASIC data file used by SANTA program	16k BAS	n/a
JAZZ	demo	BASIC	plays a jazz number	16k BAS	basload

DISK volume 033 UTILITIES 003

DISK FILENAME	CLASSIF	LANG	WHAT IT DOES	REQUIRES	HOW TO LOAD
033 MODEN3	modem	BASIC	a telecommunications terminal program	16k BAS	basload
PRCONTRL.80	printer	BASIC	makes the computer emulate a smart terminal, can download files and save on disk or print.	16k BAS	basload
BINCONV	human	BASIC	BASIC control code driver for MX80 printer	16k BAS	basload
DISASSM	debug	BASIC	converts binary values to decimal	16k BAS	basload
			this acts as a calculator, you input a number in binary and receive the decimal equivalent, or vice versa.		
UPLOAD.LST	modem	BASIC	disassemble machine code to assy lang	16k BAS	basload
RECEIVE.OBJ	modem	ML	essential if you are learning assembly language or trying to figure out how a piece of machine language program is working. this program takes the raw contents of a selected area of memory and does just the opposite of what an assembler program does, it tries to convert the binary machine instructions back into (somewhat) understandable 6502 assembler language statements so you can follow the logic and see what it is intended to do.	16k BAS	loaded by MODEN
SEND.OBJ	program	ML	BASIC upload a listed program via modem	16k BAS	loaded by MODEN
	modem	ML	machine language subr used by MODEN	16k BAS	loaded by MODEN
QUICKSORT	programming	BASIC	machine language subr used by MODEN	16k BAS	basload
			useful in writing data handling programs, this routine sorts records in memory based on specified key. this is about twice as fast a sorting method as the bubble or ripple sort usually seen in BASIC programming examples and textbooks.		
HEAPSORT	programming	BASIC	sort values in an array	16k BAS	basload
MODEN	modem	BASIC	this is a different sort method comparable to quicksort in speed.	16k BAS	basload
			BASIC telecommunications smart terminal	16k BAS	basload
SCR	human	BASIC	this program uses the SEND.OBJ and RECEIVE.OBJ routines. it is able to both send and receive text or binary program files over a modem.	16k BAS	basload
ADDRFIND	human	BASIC	easy way to turn cassette motor on/off	16k BAS	basload
PRNTEST	printer	BASIC	allows manual or program control of atari cassette.	16k BAS	basload
TAPEDUMP	debug	BASIC	human BASIC decodes binary file headers	16k BAS	basload
			shows both decimal and hex values, start and end addresses for a binary file		
RAMPMAX	human	BASIC	prints a series of standard ascii values on printer	16k BAS	basload
AREACODE	human	BASIC	BASIC reads cassette and dumps to screen	16k BAS	basload
AMODEM48.OBJ	modem	ML	this program directly reads machine code files stored on cassette and lists the contents to the screen in hex and decimal values, also disassembles into 6502 op codes.	16k BAS	basload
AMODEM42	modem	BASIC	BASIC shows address of current TOP-OF-RAM	16k BAS	basload
			human BASIC lookup telephone area code given city	16k BAS	basload
AMODEM.DOC	modem	BASIC	smart terminal program in machine lan	16k	dosload
			from dos level, use the L command to load and execute this program.		
			modem BASIC full featured smart terminal program	16k BAS	basload
			this version uses error checking protocol compatible with CPM modem conventions. this also makes it compatible with many bulletin board services both Atari and non-Atari. documentation file provided.		
			modem data listable documentation for AMODEM42	16k	doscopy
			to view this file use the dos C command to copy it to destination E: (which signifies your screen Editor) or to destination P: (which signifies your printer). while listing to screen, you can use control I to temporarily halt the scrolling of the listing, another control I resumes the scrolling. (to key in control I press numeric I key while also holding down the control key).		
DISKPEEK	debug	BASIC	BASIC view disk sectors in hex and ATASCII	16k BAS	basload
SEPARATE	modem	BASIC	view disk sectors in hex and ATASCII	16k BAS	basload
			BASIC splits apart a downloaded file	16k BAS	basload
AUTODIAL	modem	BASIC	use this as a convenient way to separate a down load file if you have downloaded several program listings in one session and your terminal program has dumped them all to disk as one concatenated file.	16k BAS	basload
			modem BASIC prepares HAYES MODEM autodialer file	16k BAS	basload
			this is a utility that makes it easy to generate a file containing proper coded entries that can be used by the HAYES smartmodem as auto-dialable sequences. Requires a HAYES smartmodem.		

DISK volume 034 home/business 002

DISK FILENAME	CLASSIF	LANG	WHAT IT DOES	REQUIRES	HOW TO LOAD
034 DATABASE	fileing	BASIC	create and maintain data base records	16k BAS	basload
HOMEFIN	finance	BASIC	you define number of fields per record and headings, program then handles adding records, prompting by field headings, or allows selection, sorting, and printing of already stored records.	16k BAS	basload
TTEND	finance	BASIC	BASIC set up and maintain budget accounts	16k BAS	basload
			you specify accounts to be tracked. program handles updating, adding records, totalling and displaying results by account.		
			BASIC forecast a time series	16k BAS	basload

CHANGER	handles 18 period forecast of data using exponential smoothing technique to derive trend curve from raw data points	finance	BASIC	figures out sales change amounts	16k BAS	basload
DATALOAN	this is essentially a point-of-sale calculator similar to the function of an electronic cash register.	finance	BASIC	figures monthly loan payment schedule	16k BAS	basload
TUPWARE	computes monthly payment principal, interest and balance remaining for any combination of loan amount and interest rate.	finance	BASIC	tallies tupperware party sales data	16k BAS	basload
TYPING	this is designed for tupperware agents and party hosting, it stores table of tupperware item codes and prices, and accepts orders by item code and quantity, giving itemized receipt and correct total by guest's name. it also totals all sales for the party and can handle and report multiple parties, giving net agent sales for the month.	text	BASIC	9 lessons to teach touch typing	16k BAS	basload
PRINTCAL	prompts lessons and words highlighting errors. the lessons increase in difficulty as instruction proceeds.	text	BASIC	prints a calendar for any month/year	16k BAS	basload
SCRIPTOR	formats a neat calendar on your printer. you specify the range of months and years.	text	BASIC	full featured word processor	16k BAS	basload

this program is the best non-commercial word processing program for the Atari. it has full disk support, formatting, full screen cursor editing, insert and delete, line mark and copy functions. it does not have search/replace and does not right justify. But it is very useable (this listing was prepared using it) and it is in BASIC so you can alter it to meet your exact desires. typing is done normally; backspace, line insert, line delete, and control-arrow keys function normally as in BASIC editing. you do not need to type a return unless you want it to occur in the printed listing, since line wrap will occur automatically whenever you hit the right margin. words do not wrap (they get split) as you type, but in printing, the lines will be formatted to end the printed line only on a space or punctuation mark. tabs may be set using the shift-tab at the desired columns and killed by control-K (all tabs) or control-tab (individually).

the atari logo key is normally inoperative (you can't type inverse text) but it does act as an abort for any of the menu or prompted commands.

to clear text type shift-clear. this does not clear the screen by itself, but generates a confirming prompt. valid responses are A (all text) or R (remaining text below cursor to end of file) or D (defined text).

OPTION key is used for non destructive carriage return.

START key (press twice) homes to top of text

control-A (advance) control-R (back) allow paging forward or backward. control-G followed by a number goes to a particular line.

control-D followed by vertical cursor movement highlights or defines a block of text to be moved or deleted. press return to indicate the last line of the block. you can then move the cursor and press control-L to copy them. use shift-clear and D to delete.

to print type control-P the two options that follow are continuous print and/or Fast (screen blanked) print. you may press C or F or both or neither, as desired. pressing return begins the printing. if not continuous the printer will halt and wait for a return at end of each page. any key pressed while printing will abort the print job.

control-comma and control-period may be used as bracketing characters to signal underlining (italics on Epson).

control-F sets up a formatting line, indicated by a right pointing wedge. this line may contain one or several formatting commands separated by colons. example: lal@:rw60:pl60 the allowed commands are: as n send ascii char number n to printer; cw: nonprinting comment line; cn n turn centering of following lines on (n=1) or off (n=0); fp force end-of-page; la n set left margin at column n; rn n set right margin at column n; lp n set lines per page to n; pl n consider page (paper) length to be n lines; sp n set spacing (n=1 single, 2=double, 3=etc.); nf:filename chain to next specified filename to continue printing. you can also set up to 10 shorthand control character values by a format line containing a sequence such as: control-F 1=27:2=69:3=70:... you can then embed a control code directly in your text by typing caret symbol followed by a single digit. caret 1 caret 3 would send an escape 70 sequence to your printer at print time.

press escape to access a minidos file handling menu. press control-? to access a handy help menu reminding you of some of the above commands.

Have fun with scriptor, we did. There is almost no limit to what you can add to it once you have figured out how it is structured. Do be careful to note that to save space, scriptor erases part of itself as it initializes. so do not make changes to it and save it after you've run it. Only modify and save a copy you've loaded but haven't run.

DISK volume 035		GAMES 012				
DISK FILENAME	CLASSIF	LANG	WHAT IT DOES	REQUIRES	HOW TO LOAD	
035 SABOTAGE	GRAPHIC	BASIC	a shoot-the-objects game	16k BAS	basload	
X LIVEWIRE.OBJ	arcade	ML	list the program for instructions on how to play fast action similar to Atari TEMPEST	16k	dosload	
EGGS	arcade	BASIC	an excellent job of programming, all done in machine language. your 'shooter' swings around the edge of a three dimensional surface, attempting to shoot assailant objects that emerge along vectors from the center of the web. If you've played TEMPEST in the arcades, you'll recognize the similarity. to load, exit to DOS menu and use the L menu option to load the program. this one is fascinating. be prepared to spend some time with it.	16k BAS	basload	
FROGGIE.OBJ	arcade	ML	as eggs slowly fall from the top of the screen, you try to catch them in the farmer's basket. the more you catch, the higher your score, but when you miss...yucch. this game is instructive in showing what you can do with a player shape (the farmer) in a basic program.	16k	dosload	
FROGBOOT	n/a	ML	a nice, fast, colorful FROGGER game	n/a	n/a	
			if you haven't played FROGGER in any of its variations, the instructions are simple. use joystick movements to help the frog hop across the highway (without getting squashed) and then across the river (from floating log to floating log). when the frog makes it across, you score -- and have to come back and do it all over again, with speeded up traffic to make it a little harder. sounds easy doesn't it? this public domain version stands up rather well in comparison to commercial implementations. it, too is all machine language. from the DOS menu, use the L command to load the file FROGGIE.OBJ.			
			why is this here? we don't know, you don't need it to play FROGGIE, it isn't an autorun loader, at least it doesn't work, other than to lock up your computer. but maybe someone will take the time to disassemble			

it and figure out what it is supposed to accomplish. if you solve the mystery, please let us know..	
OILGAME	simul BASIC a graphic oil baron game 16k BAS basload
several people may compete to locate and drill oilwells, parlaying a small initial stake into a vast financial empire, you are allowed to buy and sell assets as well as keep drilling, the game is nicely done to keep up the interest level - there is color, sound, pictorial representation of when the gushers come in. not a bad way to get across basic principles of economics, either	
CAMEL	adven BASIC simulates a chase across the desert 16k BAS basload
this is a text game, in which you flee across a desert on your trusty camel, trying to escape the bloodthirsty nomads who are only a few hours behind you. you have to watch your water supply and have a menu of options to rest, walk, or race your camel flat out. both you AND the camel have to make it through, or neither will. interesting dangers and rewards stud the desert to make success a bit tricky to achieve.	
THNDRBRD	arcade BASIC a well done game similar to BREAKOUT 16k BAS basload
the layout is different, but the action similar to Atari BREAKOUT. for a game done in BASIC, this is an excellent programming job, with satisfying action and visual appeal.	
BLOCKADE	arcade BASIC two-player competition game 16k BAS basload
using joysticks two players control paths of their 'snakes', attempting to make the opponent have to crash first, since neither player can cross their own trail or the opponent's. the trick to this is to 'paint the other player into a corner' while keeping an escape route open for yourself. the action is fast and responsive, this is usually a good game when there's a group wanting to play. since it plays fast, everyone can get a turn in just a few minutes.	
CRICKETS	arcade BASIC a nonviolent arcade game, but fun! 16k BAS basload
the scenario is crickets in love, complete with courting and presents. try to collect the flowers, perfume, candy, ring, etc. but dodge the moving presents and ol' daddy cricket, who frowns on the whole thing and is running back and forth dropping hammers, boots, and other obstacles on your head to dissuade you. the game is unique and different, with lots of colorful fast action.	

★ DISK volume 041

games 013

DISK FILENAME	CLASSIF	LANG	WHAT IT DOES	REQUIRES	HOW TO LOAD
041 SHERLOCK	adven	BASIC	1983 JACG ADVENTURE CONTEST WINNER	16k BAS	autoruns

Victorian London. Curling fog shrouds quiet streets, punctuated by the occasional clatter of horses hooves on cobblestone pavements.. Inside the famous rooms at 221B Baker Street, Holmes works intently over a scrap of paper, a note from Watson. A fake! Watson abducted! Seizing deerstalker and cape from the hall rack, Holmes dashes down the stairs to the street, signalling for a Hansom cab. No time to lose; the signs point to his archrival, Moriarity. But where? and Why? Can deduction and the one slim clue succeed in a rescue? The game's afoot! Make no missteps.. you are Holmes, and Moriarity is waiting... In this engrossing scenario, JACG member GEORGE SCHULYI has created an original text adventure, replete with twists, turns, intricacy and sound effects. This is an application of the adventure-writing package on JACG volume 4, but instead of the usual dungeon, George presents you with all the flavor and setting of period London and the Baker Street literature. Can you solve this mystery? You'll have fun trying!

Disk Library Listing Continued

The JACG Disk Library listing will be concluded in the next issue. A number of new disks were added since the publication of Part I in the March issue. It has been decided to print the final installment in the May issue. It is advisable, therefore, for you to hold on to the March-May issues as they will contain a complete and detailed record of the contents of our library.

As new disks are added the list will be updated in the newsletter. If you have any original material to contribute to our library please contact one of the disk librarians. We return your disk with some additional programs on it in small payment for your philanthropy.

Punch Line Contest Winner

The winner of the March Write The Punch Line Contest is Jim Carr of Montclair. His line: "I hope my new, pretty design keeps it flying!" The card and letter came rolling in (actually Jim had the only entry but it was on a card inside a letter). Hold your breath for the next exciting event of this nature. Congratulations, Jim! Claim your free disk library choice and try to wrestle it away from Dick Lamb.

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FIRST CLASS MAIL

JACG NEWSLETTER - VOLUME 3, NUMBER 8

April 1984

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